HLPE consultation on the V0 draft of the Report:

Sustainable agricultural development for food security and nutrition, including the role of livestock

From 2 to 31 October 2015

EXTENDED UNTIL 16 NOVEMBER 2015


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In October 2014, the UN Committee on World Food Security (CFS) requested the High Level Panel of Experts on Food Security and Nutrition (HLPE) to conduct a study on Sustainable Agricultural Development for Food Security and Nutrition, including the role of Livestock. The findings of this study will feed into CFS 43 Plenary session (October 2016).

As part of the process of elaboration of its reports, the HLPE is organizing a consultation to seek inputs, suggestions, and comments on the present V0 draft. This open e-consultation will be used by the HLPE to further elaborate the report, which will then be submitted to external expert review, before finalization and approval by the HLPE Steering Committee.

HLPE V0 drafts are deliberately presented early enough in the process - as a work-in-progress, with their range of imperfections – to allow sufficient time to give proper consideration to the feedback received so that it can play a really useful role in the elaboration of the report. It is a key part of the scientific dialogue between the HLPE Project Team and Steering Committee, and the rest of the knowledge community. In that respect, the present V0 draft report also identifies areas for recommendations at a very early stage, and the HLPE would welcome suggestions or proposals.

In order to strengthen the report, the HLPE would welcome submission of material, evidence-based suggestions, references, and examples, in particular addressing the following important questions:

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?
7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

12. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

We thank in advance all the contributors for being kind enough to read and comment and suggest inputs on this early version of the report.

We look forward to a rich and fruitful consultation.

The HLPE Project Team and Steering Committee.
1. **Moises David Rojas Peña, Dominican Republic**

Sera muy interesante estudiar este informe para desarrollar la producción agrícola y garantizar la alimentación de millones de alma que en este mismo momento están pasando hambre. Con todo respecto quisiera de ante mano sugerir, que en este plan debe considerarse el desarrollo de un sistema que inicie desde el campo con la inclusión de los pequeños y medianos agricultores en asociativas para garantizar los financiamientos que puedan provenir de las instituciones internacionales de financiación. Asistirles en la preparación de la tierra para la mejora de sus productos con tecnología y con prácticas que la misma FAO ha desarrollado en múltiple ocasiones.

La inclemencia del clima es uno de los obstáculos que el agricultor está enfrentando y que en múltiples ocasiones le ha ocasionado daños económicos porque la sequía o las inundaciones o un huracán le ha destruido sus cosechas. Otro mal pollo que atraviesa el agricultor es la plaga que destruye sus cosechas o que por razones de la misma les imponen veda prohibiendo la entrada de sus productos a los mercados internacionales.

Para finalizar, quiero referirme al sector ganadero, es bueno decir que se ha avanzado en este sector pero quiero referirme a un fenómeno en particular que se está presentando en nuestro país. En cierta región del Cibao desde hace década la agricultura de la siembra de café y cacao con el tiempo fue decayendo hasta desaparecer y los agricultores pasaron a la cría de ganado y las tierras montañosa que antes servían para el café y el cacao ahora se están usando para la siembra de pasto para el ganado que por razones de la sequía y que el agua no puede llegar a las fincas ya que hay que bombarla seven en la necesidad de trasladar el ganado a los ríos y esto le produce descaste físico.

Muchas gracias.

2. **S. Jeevananda Reddy**

Dear Sir,

I wonder whether the material presented in the document is meant to serve the interests of “IPCC” or to serve the people/nations to develop sustainable agriculture.

From this report it is clear that the report is not really made to serve the people/nations to build sustainable agriculture.

Emissions and global warming has insignificant influence on agriculture. IPCC goes on changing the sensitivity factor that relates anthropogenic greenhouse gases with global warming. Also, now they say in a qualitative manner that it is only more than half of global temperature constitutes global warming. From the balloon and satellite data so far the global warming is only 0.15 °C. This is insignificant to influence agriculture. The seasonal and annual and dry to wet periods temperature variation goes beyond 10 °C that the local crops experiencing for the centuries.

The main component of climate change that has direct impact is natural variability. This I worked for several countries and adapted agriculture to them. Sometimes these are modified by local/regional ecological changes – land use and land cover changes --. Based on this concept, forefathers developed agriculture systems that are sustainable under variable rainfall conditions. To improve the economy
and nutrient security they adapted animal husbandry in to agriculture. This system was killed by chemical input mono crop agriculture. Here the yields increased with the level of irrigation and fertilizer supply and reached a plateau by 80s. So, the increase in production was due to chemical inputs. But, technology is not the primary cause for increasing the production but the primary component is irrigation. Agriculture under small holdings will be sustainable not with the technology but by providing supplemental water over rainfall.

The chemical input agricultural technology introduced the evil pollution [soil, water, air and food] that is affecting the health of life forms including the humans and crop production as well quality of potable water. To better utilize the scarce natural resources under small farm holdings is cooperative farming under organic inputs.

These are the issues that the report should have concentrated rather than emissions and global warming to serve IPCC.

I am more of a practical man than theoretical like IPCC which only creates panic and help collect billions of dollars to collect and share. Some of these are exposed very recently.

Dr. S. Jeevananda Reddy

3. **Salif Toure, Germany**

Chers membres de l’équipe HLPE et du Comité de pilotage,

Je vous remercie pour le travail réalisé. La pertinence des thèmes abordés est établie. Quelques points devraient être approfondis tant ils sont des facteurs déterminants pour une agriculture durable et la sécurité alimentaire et nutritionnelle.

1. La dégradation des terres: Je n’ai pas constaté que cette question ait été traitée en profondeur. Il ne s’agit point d’indiquer les tendances, mais aussi de pointer du doigt les causes profondes à l'origine de cette dégradation. cela aurait permis d’entrevoir les pistes de solutions.

2. L’accaparement des terres: Le document n’aborde pas cette question explicitement. Or il s’agit là d’un défi énorme surtout en Afrique subsaharienne où cette problématique continue à miner les rapports entre les organisations de producteurs et les gouvernants. Il n’est pas clair dans le document non plus à quoi se réfère t-on prioritairement pour booster la production agricole. L’agro-industrie? ou l’agriculture familiale?

3. La gouvernance: Elle est traitée très sommairement dans le rapport. Elle est cependant un pré-requis. Considérant le fait que le rapport met en exergue le secteur de l’élevage, il était opportun de mettre en lumière les problèmes d’accaparement des terres, de mobilité qui sont des contraintes majeures actuellement pour ce secteur en particulier en Afrique. Les questions relatives à l’estimation des GES sont importantes, mais elles sont intéressantes d’un point de vue de la mobilisation des partenariats et des ressources, mais quelle est la véritable perspective pour la résilience du secteur de l’élevage en Afrique dans un contexte où la gouvernance devra être renforcée.

Cordialement

Salif TOURE
GM/UNCCD
4. Menakhem Ben-Yami, World Fishing and Aquaculture, Israel

Hello Friends,

Thanks for sending me the Draft Report. Here're some initial remarks. In case of further interest, I'll be prepared to expand.

1 – I’d expect much broader coverage of aquaculture, including marine farming. Its importance for world nutrition is fast growing and so is its production.

2 – That’s OK with me that you have concentrated on livestock, however, from more general point of view, it’s the most wasteful branch of the food production system. Among others, it’s consuming many millions of mt of edible marine food to produce fishmeal for livestock’s consumption, not to speak of the mega-millions of mt of agricultural production that either could be used for direct human consumption, or could expand over areas presently used to grow animal fodder.

3 – I’d like to draw your attention to the tremendous lobbying power of various environmental groups, like WWF, Pew, GP, and the like, which have been attacking fisheries for "global overfishing" and for bringing the marine production to "the brink of collapse". I just wrote an article, debunking it, by confronting them with the latest FAO data. Such panic-mongering may be occurring also in other branches of agriculture, esp., where they may be encroaching major petro-chemical interests. So, watch out!

4 – I’d recommend, while presenting the livestock to expand the discussion to contain also alternative approaches to massive food production for the billions of hungry people.

Best regards,

Menakhem Ben-Yami


5. Hubert Cochet, AgroParistech, France

Bonjour,

Dans le §4. 2. : "role of livestock", j’ai été très surpris de ne pas voir mentionner le rôle de l’élevage dans les mécanismes de reproduction de la fertilité des terres cultivées. Pour des centaines de millions d’exploitations (notamment les plus petites), l’élevage joue un rôle déterminant dans la reproduction de la fertilité des terres cultivées et permet l'obtention de rendements parfois significatifs pour ceux qui n’ont pas accès aux engrais de synthèse faute de pouvoir d’achat. En ce sens, cet "élevage des pauvres" joue un rôle essentiel dans la sécurité alimentaire de ces ménages. Il contribue aussi à réduire l’utilisation d’engrais de synthèse et donc la production de gaz à effets de serre.

Cordialement

Hubert Cochet

Professeur

AgroParistech

UFR Agriculture Comparée et Développement Agricole

UMR Prodig

Hello;
A good contribution.
Disaster is a factor it avoids & eco-fertilizer is not discussed. The agriculture is a field one can't explain all, so rather touch all it can discussed the tech & other measure use in agri sector from 2000-10. I saw the comments & other-your works; you try to touch everything which is quite impossible.

Regards,
Md. Moshfaqur Rahman

7. Paul Rigterink, United States of America

See suggestions in answer to question 12.

Paul Rigterink, PhD

Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

I am particularly interested in smallholder systems where animals represent less than 10 percent of the total farm output in value terms. In particular, I am interested in helping the most poor raise chickens, pigs, goats, and other small animals to increase their income and food security. In the case of chickens, backyard producers value chickens for their adaptability, contributions to the family’s income and general welfare, and for insect control and fertilizers in the garden. In most family flocks, chickens scavenge plant or food residues and insects around the home. With minimal care, family flocks can hatch and raise chicks, produce high-value meat, and supply eggs. Eggs can be a particularly important source of food for children with protein malnutrition who are between six months and three years of age. Live chickens sold for meat bring a good price and are a primary source of household income for poor farmers.

It is extremely difficult for families to maintain flock numbers and replace birds which are lost or sold if they cannot produce chicks on the farm. Buying replacement chicks from a hatchery is expensive and can be disastrous for household chicken production. Hatchery birds may require artificial incubation, disease control measures, or special feeds not available on the small farms. The loss of hens’ broodiness (readiness to set on eggs for hatching) is particularly serious. When hatchery roosters cross with traditional hens, flocks can lose their ability to hatch and raise chickens in just one generation. It is best to avoid dealing in hatchery birds which have lost most of their ability to successfully hatch eggs. In addition, to gain the maximum profit, the use of poultry feeds is discouraged. Which experts do the HLPE Project Team and Steering Committee use when confronted with practical questions rather than policy questions?

In addition, inexpensive disease control markedly increases the survival and productivity of a family flock. The following four preventive practices, given every three months, will eliminate most health problems in poultry flocks:

1. Vaccination for Newcastle disease
2. Deworming for roundworms and tapeworms
3. Dusting under wings for irritating external parasites such as lice
4. Treatment for chronic respiratory disease to increase production.

What recommendations does the HLPE Project Team and Steering Committee have for veterinary supplies for pigs, goats, and other small animals?

Other questions that might be answered include:

Is the application of fundamental disease control to prevent losses from common infections and parasites worth the investment?

Can the veterinary medicines required be repackaged in the small quantities required by poor farmers? In particular, how can their flock be vaccinated for Newcastle disease?

What methods were used to insure maximum egg production (e.g. supplemental feed and keeping the chickens shaded)?

Should small farmers sell primarily eggs, live chickens, freshly processed poultry meat, or cooked chicken meat to maximize profits?

What are the best methods for preventing the loss of chickens from predators and thieves?

See my paper “Doubling the Income of Africa’s Poorest Farmers” at https://sites.google.com/site/paulrigterink/home/poultry for additional information

8. Roberto Capone, CIHEAM-Bari, Italy

Dear all,

On behalf of CIHEAM-Bari I would like to thank CFS-HLPE for this interesting initiative. The topic of this report is relevant, timely, and of interest to a wide audience. It helps also substantiating goal 2 of the SDGs that’s to say “End hunger, achieve food security and improved nutrition, and promote sustainable agriculture”.

I do believe that it is of paramount importance to highlight linkages between sustainable agriculture and food and nutrition security. That’s particularly important in the Mediterranean, especially in southern and eastern Mediterranean countries, where operates CIHEAM - an intergovernmental Mediterranean organization dealing with agriculture, food, environment and rural development.

I would like to thank the project team for attention that they paid to the Mediterranean (cf. box 4 on evolution of diets in the Mediterranean) as I think that the Mediterranean area represents a good “laboratory” and that the promotion of the Mediterranean diet can contribute to achieving sustainable food and nutrition security in the Mediterranean area.

The report is based on rigorous academic standards and its content is technically accurate and sound. The methodology and conceptual framework are appropriate and applied properly. The results are correctly interpreted and conclusions are sound. As for references, they are also appropriate but more recent references can be used.

In the framework of analysis of the contribution of sustainable agricultural development to ensuring food security and nutrition can be stressed better the multiplier effect of agriculture in rural areas and its contribution to the development of non-farm income generating activities.

As for the social dimension of agriculture, can be added a box about the so-called “social/care farming”.

As for environmental sustainability (cf. heading 3.3) biodiversity (or agro-biodiversity) can be considered as an additional subheading.

In the report should be also better stressed the advantages and benefits of mixed farming systems with both crop and animal production. Improving the sustainability of agricultural systems implies a better integration of crop production and animal production in local and territorial agro-food systems.

In the conceptual framework it is maybe better to first explain linkages and interrelations between sustainable agricultural development and food consumption within food systems/chains then to highlight interconnectedness of these with the four dimensions of food security and nutrition. Anyway, a more detailed description of the conceptual framework should be provided.

All in all, I do thank experts for this interesting and evidence-based piece of report and look forward to its final publication in order to use it as a reference document in our training, research and cooperation activities at CIHEAM-Bari in general and the department of Sustainable Agriculture, Food and Rural Development in particular.

Regards

Roberto Capone

9. Paul V. Rigterink, United States of America

I suggest that you investigate the poverty alleviation and food security research and development efforts that have been introduced by the agriculture engineers at the University of Cordoba in Monteria, Cordoba, Colombia. These engineers have successfully studied how to produce more cassava and white yams (Discorea) using better planting techniques in much the same manner as Cornell University studied how more rice could be grown using the System of Rice Intensification (SRI). Once the techniques for increasing the yield of cassava and white yams were perfected, each of the ten agriculture engineering professors at the university introduced these techniques in one to three municipals in the Department of Cordoba with the help of their agriculture engineering students (there are 30 municipals in Cordoba). Many classes have been given. The additional cassava and white yams are used for both human consumption and for animal feed by the poorest farmers in the Department of Cordoba. In particular, the cassava foliage is being used to increase pig production in the region. The poorest farmers in the Department of Cordoba are now producing more of a high value food commodity and earning additional income. This is a major change for the lives of these farmers. The ownership of animals is a way for the poorest farmers to dramatically increase their income.

See articles “Research on Cassava Foliage Production in Colombia” by Bernardo Ospina, Luis Fernando Cadavid, Jorge Luis Gil, and Álvaro Andrés Albán;

“Cassava Crop Development in Colombia” by Alvaro Balcázar B., Hernán A. Mansilla A., Santafé de Bogotá DC.


Paul V. Rigterink, PhD
United States of America
Dear colleagues,

Dear HLPE,

The undertaking of study on Sustainable agricultural development for food security and nutrition, including the role of livestock is timely and relevant to development agenda at global, regional and national level. The current structure and contents of the V0 draft of the Report is very well developed and balanced between chapters and agricultural development overall and the livestock sector. The draft report provides detailed review of the existing materials and data from the relevant sources. The trends and responses described in the report are applicable in the different countries and conditions.

Let me slightly reflect the contexts of important role of sustainable agricultural development, including the livestock in ensuring food and nutritional security in Central Asia and the Caucasus (CAC) region.

Agriculture is of paramount importance in the CAC region because of the role it plays in the development needs of its countries. First, the sector, as emphasized earlier, supports the livelihoods of the large majority of the population in rural areas, and to some extent in urban areas. In this, the role of agriculture, including livestock sector plays an important role in contributing to food security of these countries. It supports the livelihoods of not only in rural but also in urban population of the region significantly contributes to the GDP of the most CAC. Thus, the current contributions of agriculture, including the livestock assume special significance for ensuring food security, poverty reduction, and protecting the environment through sustainable use of the natural resources. In addition, the region has a large area (256 million ha) of rangelands which provide the vital feed resource for livestock, important in biodiversity conservation, and could play important role in environment protection. Cereals (wheat, barley), food crops (potato), cotton, horticultural crops (vegetables and fruits), livestock (small ruminants, sheep and to lesser extent goat, and cattle that provide meat and milk) are important agricultural commodities.

However, there are still challenges to improve productivity and production and incomes and livelihoods of small-scale farmers and livestock keepers. Those requires undertaking of following actions:

In ensuring Food and nutritional security

- Improved technology for increased productivity and production of crops in a sustainable manner in both irrigated and rainfed situations without affecting natural resource balance and environment;
- Increased investment in agriculture and agricultural research, extension, and education and their restructuring;
- Access to inputs including small farm machinery, fertilizers, credits, etc. in livestock sub-sector
- Livestock (both small and large ruminants) management in irrigated, rainfed areas and mountainous areas, where it supports livelihoods of large populations of subsistence farmers/herders in the region
- Forage and feed availability
- Rangeland regeneration and conservation
- Improved breed, insemination, livestock health, and transboundary diseases
- Processing and marketing of milk and milk products
I believe that the final version of the report will be equitably relevant to National Agricultural Research Systems (NARS), Rural Advisory Systems (RAS), education systems, development agencies, public and private sectors, consumers and producers.

On behalf of the Central Asia and the Caucasus Association of Agricultural Research Institutions (CACAARI) I would like to thank the HLPE Project Team for excellent work and sharing with broad audience the V0 draft of the Report, considering issues typical to the CAC region.

Dr. Alisher Tashmatov,

Executive Secretary,

CACAARI

11. Shaibek Karasartov, TAIC, Kyrgyzstan

<< The English version is below >>

Уважаемые члены Группа Экспертов Высокого Уровня (ГЭВУ) по продовольственной безопасности и питанию,

Хотелось бы в первую очередь поблагодарить вас за вашу работу и подготовку нулевого варианта отчета по Устойчивому развитию сельского хозяйства для обеспечения продовольственной безопасности и питания, в том числе роли животноводства.

По-моему мнению это очень актуальная тема, и насколько позволяет мой английский язык, я вижу значительную подготовительную работу. Был проанализирован значительный материал. Рассмотрены различные аспекты устойчивого развития сельского хозяйства и его влияния на продовольственную безопасность и питание. А также очень углубленно изучена роль животноводства. Предложены пути и механизмы более эффективного использования производственных ресурсов. Эти модели могут быть адаптированы к различным странам и условиям.

По сути отчета хотелось бы добавить о роли представителей власти (Правительств на секторном и региональном уровнях, Министерств сельского хозяйства и т.д.) аграрного сектора в развитии сельского хозяйства и обеспечении ПБП. Они играют очень важную роль и должны разрабатывать соответствующие нормативно правовые акты, которые способствуют развитию сельского хозяйства и обеспечении ПБП, а не препятствовали бы. Это такие документы, которые направлялись бы, например, на улучшении использования именно пахотных и пастбищных земель. Во многих странах нет законов, который управлял пастбищами. Это является основополагающей причиной деградации пастбищ, который находятся вблизи населенных пунктов. При этом отгонные или отдаленные пастбища не используются, потому что у фермеров, которые занимаются животноводством, не достаточно средств, чтобы они использовали отдаленные пастбища.

Шайбек Карасартов,

Директор ОФ "Центр обучения, консультации и инноваций"
Dear members of the High Level Panel of Experts (HLPE) on Food Security and Nutrition,

First of all, I would like to thank you for your work and the elaboration V0 Draft of the report on sustainable agriculture for food security and nutrition, including the role of livestock.

In my opinion, it is a very burning topic, and as much as my English allows me, I see considerable preparatory work. There was a considerable amount of material analyzed. Various aspects of sustainable agriculture and its impact on food security and nutrition are discussed in the draft report. The role of livestock is very deeply studied too. The ways and mechanisms for more efficient use of production factors are suggested. Of course, those models can be customized to different economies and conditions.

In fact, I would like to add a report on the role of the authorities (government at sectoral and regional levels, the Ministry of Agriculture, etc.) of the agricultural sector in the development of agriculture and FSN. They play a very important role and should develop appropriate regulatory and legal acts, which promote the development of agriculture and provision of FSN, but do not hinder the sustainable development. These legislative documents, for instance, can be addressed to improving the use of arable lands and pastures. In many countries, there are no laws/regulations on pasture management. This is the fundamental cause of degradation of pastures, which are located near population centers/villages. These outrun or remote pastures are not used because farmers are engaged in animal husbandry, do not have enough money/resources for using remote pastures.

Shaibek Karasartov,
Director of the Public Foundation "Training, Advisory and Innovation Center (TAIC)"
Kyrgyz Republic

12. Gerhard Flachowsky, Federal Research Institute of Animal Health, Germany

Dear Moderator,

Many thanks for your initiative and your present work summarized in the HLPE Draft V0. Such a paper is very important to inform public and policymakers about present situation and possible developments in the future.

But nothing is so excellent, that it could not be better. Therefore, I allow me some remarks/comments to the present version of the HLPE Draft V0:

- At the end of introduction (p.10, l.48), I would summarize the intended objective of the report.
- Sustainability should be clearly defined, also under consideration of some historical aspects (e.g. von Carlowitz 1713) and the discussion of the “Club of
Roma” about the condition of global equilibrium (Meadows et al. 1972). Later, you may come to Brundtland (1987) and other authors.

- For my understanding, a sustainable agriculture including a sustainable production of food or protein of animal origin should be characterized by an efficient use of limited resources (such as land, water, fuel etc.), an optimal use of unlimited resources (such as sun energy, nitrogen and carbon dioxide from the air, the genetic pool etc.), an improvement of farm animal productivity and low emissions, a socio-economical and ethical responsible production and the earth should be considered as the base for existence of future generations (see also Wu et al. 2014a,b).

- Figure 1 should be better explained (p. 20-22). Instead of social – economical and environmental aspects, the authors may explain the so-called 3P-concept (IUNC 2005; Boonen et al. 2012). This concept considers a balance between Planet (global resources and emissions) – People (social aspects of population all over the world) and Profit (economic aspects. money making) as an important prerequisite for a sustainable life and development on the earth. Profit should not and cannot be the only one objective of a sustainable production.

- The problems and consequences of land grabbing (mainly in Africa, Asia, South America and East Europe) for sustainable agricultural development in many regions and countries are not mentioned in the Draft. International food trade may also contribute to inhibit local food production and should be considered.

- Personally, I would recommend some critical remarks concerning imbalances in the 3P-concept and long term consequences of land grabbing and import of low cost food for developing countries and food security and nutrition in many countries (esp. for smallholders and landless farmers).

- I miss some substantial remarks about the importance of plant breeding as the starting point for the whole food chain. Recently, we (Flachowsky et al. 2013; see Annex 1) analysed the significance of plant and animal breeding (see Annex 2) for a sustainable agriculture. Plant breeding my substantial contribute to high and stable plant yields, but may also be able to reduce the need for natural limited resources, such as land, water, fuel etc.for plant growth and may help for a better/more efficient use of unlimited resources, such as N2 and CO2 from the air, sun light/sun energy or the available genetic pool from plants, animals, microorganism etc.(for example see SCAR 2008; The Royal Society 2009).

- Under consideration of the remarks above, I am surprised about your assessment of green biotechnology (p. 47/48). Personally. I think that we have to use the potentials of green biotechnology to use limited natural resources (such as water etc.; see above) more efficient and to improve the using of unlimited resources (e.g. protein syntheses on N from the air by microbes similar to legumes; more efficient photosynthesis with more CO2 in the air). The present results of genetic modifications of plants (resistant against herbicides etc.) or the changes in plant composition and to increase the content of some nutrients etc. should be considered as a starting point of
green biotechnology driven by some companies. But the objectives mentioned above should be sponsored by public research, not only by companies and some private foundation (see also one of my previous books; Flachowsky 2013).

What means meat (see p. 24 and 27/28 etc) in your paper and in your calculations? Meat is very difficult to define (e.g. body weight of animals for slaughtering with or without content in the digestive tract; empty body weight (warm or cold), empty body weight without bones; considering of edible inner organs etc.). Some years ago, we tried to calculate carbon footprints for meat and came to the conclusion, that edible protein would be the best parameter to compare animal yields (milk, meat, eggs etc.). Attached, you will find the paper dealing with this topic (Flachowsky and Kamphues 2012; see Annex 3).

Ruminants and grassland are for my understanding in your work in some cases under evaluated. Grassland is available in large areas and ruminants are the only animals, which are able to use grassland to produce edible protein without any competition to human nutrition. Agricultural (e.g. straw) and industrial by- or co-products of food and biofuel industry (e.g. Makkar 2012) should be also considered as valuable feeds (mainly for ruminants, but also as important protein sources for non-ruminants. We should find effective ways to use such feeds rich in fibre, but not in competition to humans in animal nutrition and to reduce negative consequences on environment (e.g. methane emission etc.; see contributions in Malik et al. 2015)).

In addition to aspects mentioned above, I miss some alternatives of food production/using for a complex consideration of sustainable agricultural development for food security and nutrition, such as:

- Development and perspectives of aquaculture
- Insects as food and feed (see Makkar et al. 2014; van Huis et al. 2014; EFSA 2015)
- Valuable plant protein sources to produce similar animal products, cultured muscle cells (e.g. Post 2014)
- Reduction of feed and food losses on the field, during harvesting, storing, in the food industry, trade, household and kitchen left overs
- Changing of eating behaviour/eating patterns (e.g. Guyomard et al 2012)
- Some minor comments:
  - List of references should be checked (e.g, I missed Havlik et al. 2015; p.55, l.21; Perry et al.; p. 56, l. 35)
  - Necessity of food of animal origin in human nutrition should be better explained (e.g. more examples; why is a need?)
  - Some figures need reference(s); (e.g. global meat etc. consumption; p. 8)
  - Repetitions should be avoided (e.g. p. 8, l. 31 ff. and p. 17; l. 38 ff)

In summary, the paper can be considered as a valuable review of the present stage on food security and nutrition, but I miss some ideas and visions for a solution of future challenges.

List of references mentioned above:


EFSA (2015): Risk profile related to production and consumption of insects as food and feed. Scientific Opinion, EFSA Journal 2015;13(10) 4253; Online published 08.10.2015

FLACHOWSKY, G. 2013. Animal nutrition with transgenic plants. 234pp. CABI, Wallingford; UK.


MAKKAR, H.P.S. (2012): Biofuel co-products as livestock feed - opportunities and challenges. Biofuel co-products as livestock feed - opportunities and challenges, xviii + 533


SCAR. (Scientific Committee of Agricultural Research of EU; 2008): New challenges for agricultural research. Climate change, rural development, agricultural knowledge systems. The 2nd SCAR Foresight Exercise, Brussels, 112


Recently, we (G. Flachowsky and U. Meyer) submitted a paper entitled “Sustainable production of protein of animal origin – State of Knowledge” to a scientific journal. After reviewing, now we consider the comments of reviewers (too long, too many references etc.) and send it back to the journal immediately. After publication, we can send it to you, if you are interested in.

Best regards

Gerhard Flachowsky

13. Bibhu Santosh Behera, Ouat Bhubaneswar, India

This is my research related to sustainable livelihood please go through it.

Enhancing Community based Food and Water Security through Micro-Diversion Based Irrigation Initiative in poverty stricken areas of Orissa


Bibhu Santosh Behera

14. Ali Doloso, Occupy UN 4 Animals, United Kingdom

The ISSUES are too many.

Really you need to meet with Mercy for Animals, PETA, and Compassion in World Farming to find out what is going on.

Live Export is the shame of humanity

http://www.banliveexport.com/gaza-files Australian Cows - sent to Gaza and Tortured, stabbed in eyes

http://www.animalsaustralia.org/take_action/Australia-condemns-sheep-dea...

Aussie cows died in the extreme heat, how would they like it
Why are the rest of us force feeding ducks, using Ancient Egypt Method? The Pharaoh also enjoyed this.

This is not part of what the UN Calls "Sustainable Agriculture", which is supposed to promote animal welfare and responsible production.

BABIES - https://www.facebook.com/gary.yourofsky/videos/863883167000266/?pnref=story

Babies should not be taken from their mother so soon

It is a disgrace - https://www.facebook.com/BloodyDairy?fref=ts

DOG MEAT - why do you not add dogs and cats to the UN FAO Figures?

http://notodogmeat.com/

Someone has to. Dogs and Cats are BOILED ALIVE - yes boiled alive in Huge Regions of China.

So are turtles and frogs - why are they not on the agricultural figures?

The whole state of affairs is appalling and animals are suffered.

Where is your statement about Animal Welfare, inside of Sustainable Agriculture!

Please find attached my report on "Agricultural Atrocities" (http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Globe%20post%202015%20Natural%20Capital%20_0.doc)

However strict we make the policies, we need to make them 15 times stricter

This information has been collected from the Global Animal Rights community who are the ones that get hold of the grass roots issues.

The REAL issues.

Please look at this report. You will see what really goes on and why stricter policies are needed.

Please help these poor creatures.


DOG and CAT meat needs to be included, while discussing the others eaten

Sending information on behalf of my friends at NoToDogMeat

Please contact

http://notodogmeat.com/
Please see this link, it shows how millions of dogs and cats are prepared, using Ancient Live Meat Process

https://www.facebook.com/EndFoodTortureCulture/photos_stream

PLEASE ADDRESS THIS ISSUE - Very Important *

In South Korea alone over 2.5 Million dogs are eaten yearly. Every summer a two month long dog meat eating festival takes place and up to 15,000 dogs and cats will die each day. There is no regard to the Universal Five freedoms of the sentient being. (as defined also in Article 7 of the OIE Terrestrial Code). What is really shocking is that the torture and slaughter frequently takes place in front of children.

In China this figure is close to 10 Million with dogs skinned alive, their fur then sold for cheap clothing. Dog meat festivals such as in Yulin are commonplace and there is no regard given to health or sanitation. Activists are frequently pushing for welfare laws to be created and our team is working on draft legislation.

Koreans believe the more the animal suffers the better the meat tastes. This means dogs are beaten and blowtorched alive and cats are boiled to make soup and elixirs. Imagine a kitchen full of pressure cookers where cats are plunged into hot water alive. This happens in a sophisticated country, the home to Samsung, LEGO and Hyundai.

Please can the Board Members watch this documentary

I think there are a lot of things that you need to be informed about and the documentary is extremely informative

http://www.imdb.com/title/tt0358456/

Thank you

15. Arsen Kerimbekov, JV Kazagromarketing, Kazakhstan

<<English version is below>>

Дорогие участники консультаций

Нулевой вариант доклада приводит детальный обзор концепций, понятий, категорий, тенденций. Это хорошо общего обозрения. Однако, мне кажется, окончательный вариант должен быть укороченным и адаптированным для широкого круга читателей.

Я также, хотел бы отметить, о подходе к принятию решений, на странице 67, который, на мой взгляд, заслуживает особого внимания. Но, возможно, авторы хотели представить наиболее общую модель.

Сначала идет, в верхнем кругу "Identifying and prioritizing objectives", затем "Undertaking analysis", и потом "Defining Response Options". Это, немного спорный подход.
Возможно, было бы лучше, написать, "Identifying and prioritizing challenges" на рисунке 9, как это отмечено в тексте. Тогда схема, будет выглядеть более целесообразной.

На диаграмме на странице 22, вы пронумеровали

I. Stability
II. Utilization
III. Access
IV. Availability

Хотя мне кажется должно быть наоборот:

I. Availability
II. Access
III. Utilization
IV. Stability

Арсен Керимбеков
АО Казагромаркетинг
Заместитель председателя правления

Dear participants of the consultations,

Zero version of the report provides in-depth review of concepts, categories and trends. It is good for overview. However, it seems to me, the final version should be shortened and adapted for a wide range of readers.

I also wanted to point out the Decision-making approach, on page 67, which, in my opinion, deserves special attention. Perhaps, the authors wanted to present the most common model.

At first, in the upper circle we see "Identifying and prioritizing objectives", following by "Undertaking analysis", and then "Defining Response Options". This approach is somewhat disputable.

Perhaps it would be better to write, "Identifying and prioritizing challenges" in Figure 9, as noted in the text. Then the scheme will look more appropriate.

In the diagram on the page 22, you are numbered:

I. Stability
II. Utilization
III. Access
IV. Availability
Probably, it should be numbered as:

I. Availability
II. Access
III. Utilization
IV. Stability

Looking forward for the final version of the report.

Arsen Kerimbekov
JV Kazagromarketing
Vice-Chairman

16. Moises David Rojas, Dominican Republic

Todo el borrador esta correcto, solamente tengo una observación en el punto en que proponen la siguiente teoría:

Sumberg (2012) señala que los principales estudios analíticos, incluido el informe del Consejo Interacadémico (2004), el Informe sobre el Desarrollo Mundial (Banco Internacional de Reconstrucción y Fomento / Banco Mundial, 2007), la Evaluación Internacional de Ciencia y Tecnología Agropecuaria (IAAST, 2009) y el informe del Reino Unido Foresight (2011) se basarán en el análisis de rendimiento de diferencia como un dispositivo de encuadre de prescripciones políticas agrícolas orientadas a la toma de mejoras en la productividad agrícola en duraderos las partes del mundo donde se puede hacer la mayor diferencia de los medios de vida y FSN (Sumberg, 2012; Consejo Interacadémico, 2004; Foresight, 2011). Como Sumberg señala, rendimiento- o la productividad-gap El análisis, elaborado a partir de las disciplinas de la ecología la producción agrícola y la microeconomía, puede ser una muy recurso de enlace útil para centrar la atención en la promesa de lo que podría ser alcanzado para aumentar la productividad agrícola. Él esboza una serie de formas en que los analistas han estimado que el déficit o brecha entre el rendimiento real y potencial de los cultivos y explora la importancia relativa de los factores e insumos que explican las diferencias, poniendo de relieve la importancia de la especificidad ubicación del marco y el hecho de que favorece exploraciones a largo plazo. Y mientras él ve gran mérito en el análisis de brecha de rendimiento como dispositivo que enmarca para el debate político sobre las intervenciones para mejorar la productividad agrícola y FSN, que señala que es utilizado a menudo por los defensores de las políticas de apoyo a las narrativas o prescripciones particulares que podría estar mal relacionado con el análisis de rendimiento de diferencia sin tener en cuenta sus matices y limitaciones (incluyendo especificidad ubicación). Aunque podría ayudar a centrar la atención en las oportunidades, análisis de rendimiento-gap en sí mismo, es poco probable que ayudar a desenredar "continuar el debate y cuestionamiento sobre visiones alternativas, objetivos e instrumentos de la política agrícola (sobre) las explotaciones grandes o pequeñas; participación de mercado o la autosuficiencia; fertilizantes y los transgénicos o la agroecología; zonas desfavorecidas o marginales" (Sumberg, 2012).
Esta teoría es parecida a la teoría del comercio basado de que cada país puede y debe producir y comercializar de acuerdo a lo que puede realizar es decir un país produce y vende lo que a otro le falta. Este concepto en teoría es bueno pero en la práctica no han producido ningún beneficio para el desarrollo humano, social y económico de los pueblos. La propuesta de Smberg 2012, basada en el rendimiento se aparta de la realidad que actualmente esta latente en el campo de los pequeños y medianos agricultores y que ustedes mismo señalan; Esta es tal vez porque que cubre una gama muy amplia de temas dispares y complejos - el papel de las empresas de pequeños agricultores y las comunidades rurales que dependen de la agricultura; las condiciones de trabajo del sistema agrícola y alimentario los trabajadores; la nutrición, las enfermedades transmitidas por los alimentos y la salud humana; reducción de la pobreza; preferencias culturales; y cuidado de los animales - que son muy específicos de país y no se prestan fácilmente a la generalización y son a menudo difíciles de cuantificar y comparar. La dimensión social de la agricultura sostenible el desarrollo es, pues, una de las zonas más difíciles de abordar, aunque muchos de los problemas son a menudo inextricablemente vinculado a las dimensiones económicas y ambientales. Crear un marco integral para el examen apropiada para guiar las políticas, instituciones y acciones, utilizando las tres dimensiones de la sostenibilidad (social, económica y ambiental) que surgió del proceso de Río.

La Participación de los agricultores es la clave para la agricultura sostenible. Teniendo en cuenta los incentivos adecuados y el apoyo del gobierno, las familias de agricultores pueden y están haciendo progresos significativos hacia la gestión de su tierra y el agua de manera sostenible. Los recursos genéticos son esenciales para el suministro de alimentos que se incrementara. Las autoridades de las regiones ricas en recursos genéticos deben ser alentadas a conservar las especies silvestres de animales y plantas.

El Suelo y el agua deben ser conservados para mantener la productividad de la planta. Esto requiere la introducción de la gestión de la tierra para reducir o detener la erosión del suelo y mantener o aumentar la capacidad de retención de agua del suelo. La agricultura de regadío necesita ser revisado, donde se desperdicia el agua o el rendimientos de los cultivos están disminuyendo como consecuencia de la salinidad del suelo y el anegamiento. La contaminación atmosférica, incluyendo la lluvia ácida, daña los cultivos y masas forestales. El uso excesivo de fertilizantes químicos y pesticidas envenena los suelos y reduce la productividad.

Claro derechos de propiedad y de los sistemas de tenencia de la tierra y proporcional poderosos incentivos para los propietarios e inquilinos de utilizar sus tierras de manera sostenible. Los países en desarrollo necesitan precios justos para sus productos y una mejor infraestructura agrícola, incluyendo los servicios de extensión adecuados y el transporte eficiente para conseguir sus alimentos a los mercados.

Ningún sistema económico que el hombre a puesto en practica a resuelto definitivamente los problemas esenciales como el hambre, la desnutrición, y las enfermedades tan simple como una gripe, todos han fracasado y es hora de realizar un cambio y debe aplicarse tomando encuesta a la persona para que su Desarrollo Humano sea homogéneo.

Estamos asistiendo a unos tiempos esenciales para la supervivencia humana y en ustedes esta la oportunidad de desarrollar y garantizar un sistema de producción y alimentación mundial para poder eliminar el fantasma de la hambruna y la desnutrición de la tierra. Las instituciones que ejercen influencia en el sistema económico mundial deben de cambiar su estrategia de producir solo dinero es necesario que a la par de producir dinero se preocupen por desarrollar la calidad de vida de cada habitante de este planeta, En ustedes esta la oportunidad de desarrollar este sistema mundial de desarrollo ya que poseen los recursos tanto humano como económicos para realizarlo.
17. David Ojo, NHORT, Nigeria

Thanks for this initiative. I suggest the use of tools and protocols for assessing Food Insecurity be extended to scientists in the global South where the pinch is much felt. Could participate in the search for personnel and participants.

18. Willy Baltussen, LEI - Wageningen UR, Netherlands

**General**: good overview of Sustainable Agricultural Development for Food Security and Nutrition and role of Livestock.

Few comments per chapter:

Chapter 1: Difficult to read because of:

1. Lot of details with a mix of facts, research and opinions.
2. Long sentences, difficult words and many abbreviations.

Suggestion is to start with figure 1 at the end of the chapter and then start to explain the elements in the figure.

Suggestion 2: add list with abbreviations.

Chapter 2: Trends and drivers: good overview

P23 line 9: political issues are lacking besides the social, technical, economic and environmental (STEEP method). On page 30 it is mentioned in a qualitative way (have a major impact....).

Section 2.2: some issues are not (clearly) mentioned. For example what is the role/influence of breeding companies, processing industry and retail companies in the livestock supply chain. This related to the fact that future growth of demand of animal proteins will be in urban areas and not in rural areas.

Role of technology and political reactions on these developments are not discussed.

Interaction between food availability, food prices and human health risks (AIDS, Ebola, ...) and world peace (mid-East).

P41: is starvation of animals a food loss? If yes then animal food losses are underestimated.

Chapter 3: Challenges: good overview

P45: soil pollution can be added to priority environmental challenges.

Chapter 4: Pathways and Responses

Pathways: the ‘what’ question is answered but not the ‘how’ question.

Chapter 5: Conclusions and recommendations

Concern about the role of downstream actors: these organisations are part of the total food system which is getting more and more disconnected with consumers. It is too simple to state that these actors are the cause of problems (price formation, producing bio-fuels, directing production practice). For example the biofuel sector is promoted by subsidies/other legislation in many parts of the world (EU, Brazil and USA) so Governments have to think about the impact of their choices.
P 81: Changing consumer diets: this is very hard and needs a long transition period. Also in developing countries people are changing to ‘western’ diets (hamburgers and cola). However changing consumer diets of prevention to change to ‘western’ diets are part of the solution as well as lowering the losses and waste, next to decreasing the yield gap.

P 82. Fourth bullet. It is suggested that intensification and specialisation of food production goes hand in hand with high use of external inputs and negative externalities. Indeed the risks are present and examples can be given. However with best practices (manure management; health control; ...) high efficiencies can be realised without increasing impacts on natural capital. This is in my opinion important because most of the growth in demand of animal proteins will take place in urban regions.

19. Israel Rios Castillo, FAO, Panama

Agradezco la oportunidad de comentar el documento sobre desarrollo agrícola sostenible para la SAN incluyendo los medios de vida.

Al respecto considero debe resaltarse el rol de los programas de protección social como medio para garantizar acceso a fuentes de financiamiento y tecnología de los pequeños productores, principalmente de la agricultura familiar. Los programas de protección social han sido empleado como una herramienta de los gobiernos para llevar a los más vulnerables recursos de diferente índole, tales como económicos o de especias. Sin embargo, los programas de protección social aún presentan desafíos como la universalización de los servicios sociales que entrega. Desde una perspectiva de derecho, los programas de protección social contribuyen a romper la brecha de la pobreza y hambre en los países en vías de desarrollo.

Por otro lado, cabe resaltar que la pobreza no se limita únicamente a recursos económicos, sino que va más allá, en acceso inadecuado a servicios de salud, educación, vivienda, empleo, entre otras necesidades insatisfechas de los más necesitados. De igual manera, se podría enfatizar el efecto que la pobreza tiene sobre la seguridad nutricional de los grupos de mayor vulnerabilidad como las niñas y niños pequeños, mujeres embarazadas y lactantes, y grupos en mayor riesgo de malnutrición.

Por último, en relación a la creación de ofertas de empleo rural se debe cambiar la mirada a los sistemas agrícolas no basados únicamente en la producción sino también en todo el entorno que genera, entre lo que se podría mencionar el turismo agroecológico, servicios no relacionados con la agricultura en el medio rural, por ejemplo. Así mismo, indicar cuál es el rol de la empresa privada a través de los programas de responsabilidad social empresarial.

20. Wataru Yamamoto, Wataru Agroforest Consulting Inc., Canada

The report tackles one of the most important global issues in 21st century. The issue is complex; the report attempts to integrate various components related to the topics, in particular the role of livestock in food security. I recognize that a lot of efforts have been made for the difficult process.

I have following comments on this report.
1. The report presented four pathways to sustainable agriculture production. One of the pathways is environmental.

P 63 line 11 says:

“A pathway emphasizing the “environmental” dimension would give priority to conserving natural resource systems and cycles, with production and farming livelihoods better integrated with agro-ecological conditions, such as is encapsulated in agro-ecological intensification.”

In order to emphasize environmental dimension with integration of agro-ecological condition, for Use of trees for ruminant production by silvopastoral system is an important pathway. According to my study ilvopastoral area has positive impact on milk production n dual purpose cattle production system in Nicaragua (Yamamoto, et. al., 2007). Please see attached article.


Silvopastoral system is an important model of pathways with more attention to the environmental and social aspects (Page 63 Line 19-24) with sustainable intensification (integrated, low external input, climate-smart agriculture). It is low carbon agricultural production systems (Page 64 line 7).

Page 84 line 14 Environmental Aspect of conclusions

The following point can be added.

“Incorporate wherever possible silvopastoral system positively using tree resources (through feed, animal health, etc.) into livestock production which contributes to watershed management and biodiversity conservation simultaneously” can be included.

2. Page 63 line 19, As an institutional structure for promoting environmentally sustainable agricultural production, certification can be considered. We studied Certification on Environmental Sustainable Beef Production in Developing Countries. Please see attached report.


Also as Environmental Aspect of conclusions (Page 84 line 14), the following point can be considered. “Incorporate wherever possible certification system for environmentally sustainable agriculture” can be included.

3. Global demand on livestock products is increasing dramatically. One of the most important trends is the increasing meat consumption in BICS countries, particularly in China.

As a pathway to tackle the issue, awareness raising for consumers can be considered. Consumer perception should be directed to consume products produced in more environmentally
sustainable ways. We studied the issue in Japan Netherland, Canada and Costa Rica. Please see the same report above.

4. Page 50 “3.2.3 Risks in an interconnected world”, Environmental risk due to trade liberalization is neglected.

For example, in Dien Bien Province, mountainous region in Northwest Vietnam, expansion of shifting cultivation for corn production causes forest degradation. Corn is largely purchased for feeding animals by piggeries located near Hanoi and pork meat is exported to China. I believe such environmentally negative connections to produce livestock feeds occur throughout the world. Increasing demand of pork in China caused environmental damage (degradation of forests) in Vietnam.

5. Throughout the report the role of livestock as insurance was recognized but reducing environmental damage by livestock by introducing insurance is missing. By providing insurance number of livestock as insurance can be reduced.

Please see attached concept note: Connecting climate change solution with poverty alleviation by rural finance: Expansion of crop production and reduction of livestock pressure on natural resources by agricultural insurance in Bugesera region, Rwanda.

6. Page 63 line 26

“Intensification and the continued shift from ruminants to monogastrics (especially poultry) are continuously improving land-use efficiency, helping to reduce the land area used per unit of output.” Fishery can also land use efficient production system. It would be better to compare ruminant, monogastrics and fish in terms of productivity as per energy consumption. Fish production/consumption is particularly energy efficient needed because they are cold blooded animals.

7. Page 32 line 43

According to the typology of the report, small holder mixed farming system considers more for those in Asia. Smallholders in Latin America are rather large scale and extensive; therefore it is difficult to fit in the typology.

8. Page 84 Line3

“Intensify efforts to rebuild and revitalize rural communities including through rural non-agricultural initiatives and infrastructure enhancement”.

As non-agricultural sector in government agencies, collaboration with forest sector is very important to intensify the effort because they have lands (forest land, many time they are not productive), available offices at the very rural conditions and political strength to organize with other sectors.
For example, in India, Uttar Pradesh Participatory Forest Management and Poverty Alleviation Project uses Joint Forest Management (JFM) scheme to support rural poor by organizing women’s groups (Self Help Group) to provide finance to produce vegetables, poultry, etc.

21. John Webster, Prof Emeritus, University of Bristol School of Veterinary Science, United Kingdom

I wish to commend this document. I believe that it has presented a thorough and balanced argument that takes account of the major concerns relating to food security, economics, land management, societal pressures and animal welfare. It is also refreshing to read a review on sustainable agriculture that gives proper and sympathetic recognition to the importance of pastoral systems especially in the less developed world not only to food production but also in relation to environmental stability.

I have addressed these issues in detail elsewhere (Webster 2013, 2016). Here I wish to draw attention to a matter of major importance that has not, in my opinion, been given due weight. You recognise (p41) the need to use full life-cycle assessments to evaluate the environmental impact of all agricultural systems. Again on p48 you refer to the “narrow metrics” used in consideration of the GHG footprint associated with food production from ruminants. However you do not develop this theme. In particular you do not consider the potential of pastoral and especially silvo-pastoral systems to act as major C-sequestrering sinks. The impact of ruminants is considered only in terms of production of greenhouse gases (GHG, principally methane) and means of reducing output. Recent research based on life cycle analysis indicates that C sequestration in well-managed pastoral and silvo-pastoral systems can exceed GHG output from ruminants grazing these systems (Soto Pinto et al 2010, Sousanna et al 2010). It is clear that these ecosystems, which depend for their sustainability on properly managed grazing, can make a highly significant contribution to sustainable agricultural development in ways that (in your words) should be “compatible with values…. by reducing greenhouse gas production, land degradation, water pollution…. and achieving animal welfare” (p45). The second phrase would read better as “reducing net greenhouse gas production through C sequestration”.

Your conclusion 7f (p84) within the environmental section states:

“Incorporate incentives to reward public goods provision and disincentives (polluter pays) including appropriate pricing structures to support sustainable use of natural resources”

This is a powerful recommendation that I applaud. I have criticised the Environmental Stewardship Schemes within the EU Common Agricultural Policy for the fact that they “focus only on the prettier features of planet husbandry, like wildlife, and neglect the big issues such as carbon sequestration and water management” (Webster 2013, p208). Your paper recognises the vital importance of well-managed pastoral systems to sustainable land management. However I believe that you need to give much more emphasis to the point that the people whose life depends on the management of this land cannot be expected to compete if their reward comes entirely (or nearly entirely) from the sale of food and other animal produce. Until we can fully reward their contribution to sustaining the quality of the living environment, all will suffer.

References


Sousanna JF, Allec T, Blanfort V 2010 Mitigating the greenhouse gas balance of ruminant production systems through carbon sequestration in grassland Animal 4 334-340


22. Ilse Köhler-Rollefson, LPP (League for Pastoral Peoples and Endogenous Livestock Development), India

p. 45, lines 32,33,34 – to the livestock sector specific problems, we should also add “antibiotic resistance”.

p. 57, line 35-36. “Agriculture has a potentially important role in contributing to the emerging problem of antimicrobial resistance”. This needs to be expressed stronger. For one, this problem is specific to the livestock sector; secondly it is not only “potentially important”, but proven to be so. So the sentence should read “The livestock sector has an important role in contributing to the problem of antimicrobial resistance.”

p. 60, lines 6-8. “There is a broad consensus that while the livestock sector generates many health, livelihood, economic and environmental benefits, it also contributes to many nutrition, health, social and environmental problems.”

What should be mentioned here is that both problems and benefits of the livestock sector depend on the system in which livestock is kept. Maybe a table relating the respective problems and benefits to the types of livestock systems they are associated with would be helpful.

p.62, lines 12-16. “Technically, the potential exists even with existing technologies to narrow the productivity or yield gap between the highest and lowest performers in a region and thus increase agricultural production, including livestock and animal feed production. A fundamental question is how to scale up the well understood technologies and approaches to improving yields that are massively underused by poor producers. “

This is a frequently made statement, but it does not clarify what the “existing” and “well understood” technologies are. It would be really important to provide some examples for the benefit of non-livestock experts.

p. 64, lines 27-28: “Without the large scale operations the very existence of the small and intermediate operators would be in question (as would the sustainability, livelihood and other benefits that are claimed to be associated with these systems)”. Clarification please, why this is so.

23. Sarah Tanvir

The report should be made Brief, Crisp, Simple. The role of nutrition with food safety and agricultural sustainability and livestock is a multisectoral topic and its related to a wide range of factors i.e Water availability and quality Climate condition Transportation and infrastructure Population size Good governance Finance department and tax policy Healthcare Markets Literacy and cultural factors All the above factors have to be kept in focus while dealing with nutrition, food safety and agricultural sustainability.
Livestock Context of India

Animal husbandry is an integral component of Indian agriculture supporting Livelihoods’ of more than two-thirds of the rural population. India has 256.7% of world’s buffaloes, 12.5% cattle, 20.4% small ruminants, 2.4% camel, 1.4% equine, 1.5% pigs and 3.1% poultry. International Livestock Research reported that the livestock sector grew at an annual rate of 5.3% during the 1980s, which was almost double the growth rate of the crop sector. In subsequent decades, growth in the livestock sector declined and reached 3.6% during the 2000s. Despite this decline, growth in the livestock sector remained about 1.5 times higher than growth in the crop sector. Livestock production directly contributes to food security by being the source of milk, meat, and eggs. Though livestock products are expensive yet they are the best sources of high quality protein and micronutrients that are essential for development and good health. However, poor people tend to sell them instead of consuming at home which is causing low per capita annual consumption of milk (69 kg) and meat (3.7 kg). The government of India initiatives like crossbreeding programs (door step artificial insemination services in cattle and buffaloes), improved animal health services, fodder development programs and better access to markets has contributed to increased livestock production but the average yield is low compared to world average: milk yield of Indian cattle is fifty percent less and meat yield 20-60%. Some of the causes of low productivity are explained below.

The small holder livestock production is mostly characterized as extensive where animals rely upon low quality roughages. Crop residues like rice, wheat, sorghum, millets etc., are the key source of feed for animals and their availability is not adequate, the deficit of dry fodder, concentrates and green fodder is 10%, 33% and 35%, respectively. Mostly small holders are unable to grow cultivated fodder as the land possessed by them is very small and it is used for producing cereals.

Outbreaks of diseases like Foot and Mouth Disease, Black Quarter, PPR, Brucellosis, Swine fever and Avian Influenza etc., on a regular basis continue to impact productivity.

Despite promoting crossbreeding program for more than four decades, India’s crossbred population has not exceeded 25% in cattle, 21.5% in pigs and 5.2% in sheep. Most of the crossbreds are not properly managed by small holders due to lack of adequate knowledge and resources.

Due to urbanization and conversion of waste lands for agriculture purpose grazing lands are shrinking dramatically impacting fodder scarcity.

Although, there is an improvement in health service delivery system in the country availability of services is mostly observed in milk shed areas that too confining to dairy animals. Reach of quality services to small ruminants, pigs and backyard poultry still a big challenge.

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1 Indian rural population was 851,530,000 in the year 2013

2 Report of the working group on animal husbandry and dairying 12th Five year plan 2012-17 submitted to Government of India

The livestock sector is likely to face threat of climate change. The global warming is likely to cause a loss of 1.6 million tons milk production by 2020 and 15 million tons by 2050 from current levels in India. The decline in yield may vary from 10-30% in first lactation, and 5-20% in second and third lactations. The decline in milk production will be higher in crossbreds (0.61%) followed by buffaloes (0.5%) and indigenous cattle (0.4%). A rise of 2-6°C due to global warming between 2050s and 2080s is projected to negatively impact growth, puberty and maturity of crossbred animals and buffaloes. Therefore earnings of the farmers dependent primarily on animal husbandry becomes vulnerable when heat stress conditions prevail. Currently the policies are focusing more on promoting indigenous breeds which are more hardy, robust and less affected by extreme temperature and high humidity conditions with potential to produce equivalent amounts of milk as crossbreds.

CK.Rao
Senior Advisor
Intercooperation Social Development

25. Abdul Razak Ayazi, Government of Afghanistan, Afghanistan

In general, we welcome this draft report. It reads well; it is comprehensive; its findings are evidence-based and it is a forward looking report. Its recommendations, once fully developed, should be of help to all CFS stakeholders and in particular to the implementation of GOAL 2 of the 2030 Agenda for Sustainable Development (especially target 2.3 and target 2.4) as well as GOAL 12.

That said, we feel that the report is overwhelmingly tented towards the livestock sector and at the expense of attention to the crop sector. This is our main concern with this draft report.

Below are our comments given section by section of the draft report.

Introduction

Despite being a bit exhaustive, the introduction does not come out forcefully as what is the expected outcome of the HLPE Report. On page 10, the structure of the report is mentioned but not the expected outcome. This could be corrected by the addition of one or two paragraphs. Also livestock is a bit overstated in the introduction.

1. Context and Conceptual Framework

This well researched section is balanced and underlines the challenges of hunger and malnutrition facing the world, as well as the threat to environment if business as usual were to continue. The literature reviewed to develop this section is impressive. The key role of livestock for FSN is understandable. However, in the crop sector there are also important areas for potential contribution to FSN, such as sub-sector of pulses, oil seeds and horticulture. These could also have been highlighted in this section. We also consider the conceptual framework for the report (sub-section 1.5) to be well articulated.

2. Trends and Drivers

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In Sub-section 2.1, the treatment of projections and scenarios is indeed necessary and useful. However, it would have been advisable to also reflect on the projection of food supply and demand in heavily populated developing countries like China, India, Indonesia and Nigeria. It is in these countries where the projections for food production and consumption are far more important in terms of their effect on global projections and scenarios. Also, Sub-sections 2.2 and 2.3 are entirely devoted to livestock as well as the Sub-section 2.7 (Concluding comments). In Section 2 almost nothing is said about trends in major individual crops for human consumption. Perhaps this imbalance can be addressed in revising this section of the report.

3. Challenges to Achieving Sustainable Agricultural Development

That Helps meet Food and Nutrition Objectives

This is a well structured section and provides a convincing analysis of the 22 challenges falling under the umbrella of the three Fundamental Challenges of

(i) Social Sustainability (ii) Economic Sustainability, and (iii) Environmental Sustainability. These challenges are again regrouped in Table 1 (matrix).

That said, the last two columns of table 1 shows the role of livestock related to each challenge of the three Fundamental Challenges. One can go along with this approach provided two similar columns are inserted for the crop sector. Otherwise, the matrix will be somewhat not balanced. If this is done, then the sub-section 3.6 (Conclusions) need to be drastically modified. With respect to sub-section 3.3.3 (Water), reference should be made to the good output of the HLPE Study on Water for FSN, especially the section on recommendations.

4. Towards Sustainable Agricultural Development: Pathways and Responses

This section is well written and makes a convincing case for a road map towards sustainable agricultural development. The Responses (Sub-section 4.4) is fairly thoroughgoing. However, the list shown on pages 65 to 67 needs to be aligned with the draft recommendations of Section 5 (Conclusions and Recommendations).

The nine boxes shown under Sub-section 4.6 (Trade-offs and Synergies) are indeed very useful. However, seven of the nine boxes deal with livestock, albeit under different ecological conditions, and only two boxes relate to crop-livestock system (Box 10 and Box 14). We would have preferred to see a few boxes entirely devoted to the crop sector. We also feel that it would be advisable to be a bit more forthcoming in Sub-section 4.5 (Approach to policy decision-making and actions). It needs a bit more elaboration.

5. Conclusions and Recommendations

We welcome this short but focused section. It reiterates the concerns and stresses facing the achievement of sustainable agriculture and provides a good set of recommendations (pages 83 to 85). We wish to draw attention to two aspects. The first aspect is the alignment of the recommendations with the challenges listed in Section 4 (pages 65-670) as mentioned earlier. The second aspect is an attempt to make a clear distinction between the recommendations and the actions.

For example, under Environmental (page 84) there is one recommendation (paragraph 7) and nine actions (a to g). Under Economics (pages 84-85) only paragraph 8 is the recommendation and the nine remaining paragraphs (paragraphs 9 to 17) can be interpreted as actions. In short, a matrix can inserted to separate the “CORE” recommendations from the actions. In this way the recommendations will be of a global nature and the actions will remain location specific.
One final comment: It is a very good report and we congratulate the team that put it together. But with some further work by the team based on the comments received the value of the report to the CFS Stakeholders can be further enhanced.

26. A C Baker, The Vegan Society, United Kingdom

The Report completely over-estimates the importance to food security and nutrition (FSN) of ‘the livestock sector’.

Food sovereignty, secure access to land, and water sustainability are all demonstrably far better served by plant agriculture.

The Report needs to radically change, to emphasize the growing of protein crops and vegetables because of their importance for both nutrition and sustainable futures.

Please examine our new Grow Green report: http://www.vegansociety.com/resources/downloads/growgreenreport

(12 Mb PDF).

This sets out the case for Minority World countries (specifically the UK) to take the lead in directing farming subsidies into grain legumes and other nutritious, sustainable, widely enjoyed plant protein crops. In the UK, this can be up to £25,000 per large farm.

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27. Compassion in World Farming, United Kingdom

Continuing along the path of livestock intensification and the westernisation of human diets is predicted to make food security more challenging in areas which are already food insecure

Summary

Compassion in World Farming is supportive of the report’s efforts to contribute to global food security and nutrition (FSN) by focusing on livestock. We also welcome the inclusion of animal welfare in the report. We do however encourage the report to be developed further, with particular recognition of the bio-physical limits of the planet and the negative impact of intensifying livestock production in

certain areas of the world. A particularly pressing threat is the increase in grain-fed animal production on food security and nutrition (FSN) of the most food-insecure people6.

We therefore encourage the report and policy recommendations to focus on exactly how sustainable agricultural development (SAD) can contribute to the goals of the FAO7. Specifically, we feel that the report should shift its emphasis from a focus primarily on increasing production to instead focusing on the contribution that SAD and livestock can make to:

i. the FSN of the people who are most in need of more calories and/or specific nutrients;

ii. the livelihoods of small-scale farmers and the poorest families and communities; and

iii. restoration and protection of the environment and farm animal welfare.

1. It is currently unclear how increasing livestock production alone will meet these three goals, particularly as the report correctly states that hunger is the result of poverty rather than due to a lack of available food. Focusing exclusively on producing more (animal-sourced food) ASF - without specifically targeting a reduction in the prevalence of under-nutrition and over-nutrition - could do more harm than good to global FSN. For example:

   i. under-nourished poor people may not be able to afford these additional ASF and may find grain more expensive if crops are diverted to feed livestock instead of directly to feed humans. This may therefore create a higher frequency of individuals suffering from hunger rather than fewer.

   ii. adequately nourished people with moderate incomes may be more likely to over-consume and become overweight if ASF become more available; over-weight and obese people may be more likely to stay or become more over-weight8.

   iii. increased meat and dairy consumption does not necessarily improve nutrition depending on the types and amounts of meat and dairy consumed. For instance, an increase in red and processed meat consumption is linked with higher frequencies of certain cancers9 and increased processed meat consumption with coronary heart


disease and diabetes. Therefore purely increasing livestock production as a whole, without explaining how these ASF can be produced healthily, nutritiously and accessibly to those most in need, might exacerbate malnutrition.

The conclusion of the report is mostly well balanced and we welcome recognition of: the need for de-intensification in some areas; the fact that it is impossible to adopt a western diet globally; that policy or other interventions to shift consumption patterns towards healthy and sustainable levels are needed; and that reductions in waste and losses will be helpful towards achieving a sustainable food production. We do however feel that there is limited discussion on: the negative effects on soil of increased livestock production; the inefficiency of feeding crops to livestock and its associated calorific waste due to livestock metabolism; and the benefits of agro-ecological livestock production in comparison to conventional western production. There are examples of using low-tech, localised improvements in livestock management to benefit people, livestock and the planet without having to adopt an industrialised system, the latter of which costs $3.3 trillion annually in environmental damage through global intensive farming of crops and livestock. Lastly, the report incorrectly assumes that food production must increase to feed a population of nearly 10 billion by 2050. Enough food is already produced to feed 10 billion but is wasted due to overconsumption, pre- and post-harvest losses and calorific losses due to feeding human-edible crops to livestock.

We expand on these points and outline further concerns about the report in the attached document, as responses to the questions posed by FAO.

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

The report mostly strikes the right balance, although there was limited attention paid towards nutritional needs of those that are currently overconsuming animal-sourced foods (ASF) – 2.1 billion


people globally are overweight; saturated fat from ASF contributes to this problem. Nutrition should therefore not only be improved for the under-nourished, but the over-nourished too, which could in turn help to achieve food security. This could be by redistributing ASF from those over-consuming to those under-consuming (rather than increasing food production in a world where agriculture is already contributing to climate change and biodiversity loss). Increasing supply of ASF globally is unlikely to deliver FSN for the 795 million people most in need of greater calories unless they are able to afford and access the ASF, which is unlikely in the current economic system.

We encourage the report and policy recommendations to focus specifically on how sustainable agricultural development of livestock (SADL) can contribute to the goals of the FAO (the eradication of hunger, food-insecurity and malnutrition; the elimination of poverty and drive economic and social progress; and the sustainable management and use of natural resources). The way in which SADL can improve these goals is currently unclear in the report. Specifically, it is unclear how increased livestock production can enhance:

i. the FSN of the people who are most in need of more calories and/or specific nutrients, given that hunger is driven by poverty not lack of food production;
ii. the livelihoods of small-scale farmers and the poorest families and communities; and
iii. environmental and farm animal welfare indicators.

The report discusses some impacts of intensification on the environment and animal welfare, but less on the negative effects on people, particularly on the livelihoods of farmers and farm workers. It is vital for balance and to support the FAO goals that the report assesses the possible risks of increasing the production and/or intensification of livestock agriculture that could negatively impact the FSN of the most vulnerable and food-insecure, their economies, societies and livelihoods.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

There is an omission in Section 3 on threats to biodiversity caused by livestock production. Namibia is a good example showing that 80% of wild mammal populations are found on extensive livestock

farms. Land sharing between agriculture and pasture-fed livestock has therefore benefitted biodiversity in this situation.

There is also a limited focus on soil throughout the report. Soil health is vital for livestock and crop production and must be of high quality if production is to increase. However, 33% of the world’s land is either highly or moderately degraded, limiting the capacity for production to increase. Much of this degraded land is in Africa and Asia, where the majority of food insecure people live. This questions the capacity for these areas to be able to increase livestock production.

A UK study concludes that “modern agriculture, in seeking to maximize yields ... has caused loss of soil organic carbon and compaction, impairing critical regulating and supporting ecosystem services”. It highlights “the extent to which modern agricultural practices have degraded soil natural capital”. It adds that poor soil quality is thought to be constraining productivity. Research shows that soil biodiversity is under threat in 56% of EU territory with intensive agriculture being a key factor in loss of soil biodiversity. A recent European study on soils concluded that intensive agriculture has reduced soil biodiversity in all these regions. It stresses that “future agricultural policies need to consider how to halt and/or reverse this loss of soil biodiversity”.

If less grain was needed as animal feed, arable land could be farmed less intensively. This would enable the quality of agricultural soils to be restored by methods such as the use of rotations, legumes, green manure and animal manure. Currently around 1556 million hectares of land are used as cropland globally. A UNEP report calculates that the ‘safe operating space’ for global cropland is 1640 million hectares. If we continue on a business-as-usual basis, global cropland will overshoot the ‘safe operating space’ long before 2050. A key factor in the expansion of cropland is the increase in industrial livestock production with its huge demand for feed.


3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Yes.

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

Increasing meat consumption of healthy and nutritious ASF for the most under-nourished individuals in the world is likely to help to improve global FSN. However, we must be sure not to inadvertently (or otherwise) head towards more Westernised diets that tend to be overly rich in ASF, which contribute to high levels of non-communicable diseases (this transition to a Westernised diet is already occurring in China and India23). Diets with more meat have larger environmental impacts24. There is the potential for the future of diets in developing nations to follow the pattern shown in developed nations, China and India, which in effect substitutes one dietary problem (undernutrition) with another (obesity, diabetes and malnutrition).

Much of sub-Saharan Africa will be some of the worst hit in terms of climate change, which questions the ability for these countries to produce water-intensive foods, such as livestock (particularly if it is intensively produced). Under-nourished individuals tend to be water insecure too25. Increasing the amount of livestock production in these areas will likely add to water insecurity as livestock have a far higher water footprint than crop production26.

Rather than exclusively promoting an increase in livestock production in these regions, a more robust approach might be to recommend the increased production of climate-resilient food systems such as


agroforestry alongside promoting innovative methods of producing high-quality nutritious foods using plants rather than animals.

Page 28, lines 22-24 downplays the strength of the scientific evidence that indicates that high levels of consumption of red and processed meat increase the incidence of certain non-communicable diseases.

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

There should be more emphasis on the benefits of using crops to directly feed humans rather than via livestock (the latter requires more energy to produce and creates less than half the calories that would have been available had we eaten crops directly). This inefficiency of feeding crops to livestock is vastly unsustainable and should be mentioned as such. A Chatham House paper concludes that the feeding of cereals to animals is “staggeringly inefficient” and “indirectly places rich meat and dairy consumers in competition for calories with poor crop consumers”. The International Institute for Environment and Development stresses that using cropland to produce corn, soybeans and other crops for animal feed rather than to grow food for direct human consumption is “a colossally inefficient” use of resources.


The sheer scale of the losses entailed in feeding cereals to animals means that this practice is increasingly being recognised as undermining food security. Olivier De Schutter, former UN Special Rapporteur on the right to food, highlights the importance of “reallocating cereals used in animal feed to human consumption”33. He stresses that “continuing to feed cereals to growing numbers of livestock will aggravate poverty and environmental degradation”34. The FAO warns that further use of cereals as animal feed could threaten food security by reducing the grain available for human consumption35. In our view the feeding of human-edible crops to livestock should be seen as a form of food waste.

Challenge matrix: page 59, Table 1

We believe the following entries in the ‘role of livestock’ column should be reviewed:

‘Overnutrition’ should be changed from ‘moderate’ to ‘high’ as a wide range of studies indicate that Western levels of consumption of red and processed meat contribute to non-communicable disease.

‘Antimicrobial resistance’ should be changed from ‘unknown’ to ‘high’. As a result of the strength of the evidence, the European Medicines Agency, the WHO and the European Food Safety Authority have all said that there is a need to reduce the levels of resistance being transmitted from livestock to humans, and highlighted reduced antimicrobials use as probably the most effective method available. The problem has been summarised by the European Medicines Agency which has said “In animal production systems with high density of animals or poor biosecurity, development and spread of infectious diseases is favoured, which leads more frequently to antimicrobial treatment and prevention of those diseases. This provides favourable conditions for selection, spread and persistence of antimicrobial-resistant bacteria. Some of these bacteria are capable of causing infections in animals and if zoonotic also in humans. Bacteria of animal origin can also be a source for transmission of resistance genes to human and animal pathogens”36.

‘Greenhouse gas emissions’ should be changed from ‘moderate’ to ‘high’ as the FAO states that the livestock sector is responsible for 14.5% of human-induced GHG emissions.


35 FAO (2013) Tackling climate change through livestock, Rome, FAO.

'Loss of ecosystem services' should be changed from 'moderate' to 'high'. The European Commission states that the livestock sector may be the leading player in the reduction of global biodiversity through its demand on land. The contribution of livestock farming to the present global loss of biodiversity is estimated by a Dutch study to be around 30%.

Technological innovations and shift to monogastric species: page 62, lines 27-28

We are strongly opposed to the report’s proposal to introduce further technological innovations in intensive systems to increase efficiencies in production. Further technology in intensive systems will put pressure on animals for even faster growth and higher yields which will generally lead to adverse impacts on animal welfare. Some of most severe animal welfare problems are found in intensive pig and poultry systems and therefore a shift to monogastric species will lead to an increase in very poor welfare.

Section 3.4.2 should give more attention to diseases. The European Medicines Agency has said that in animal production systems with a high density of animals, the development and spread of infectious diseases is favoured. Indeed, disease is inevitable when a large number of animals are housed together in close confinement. A report by FAO points out that industrial livestock production plays an important part in the emergence of highly pathogenic avian influenza and other diseases.

There is a strong bias in the report towards intensifying livestock production; this does not reflect the social, environmental and economic costs of these industrial systems. Examples of this bias include:

On page 48, lines 41-44, the report discusses the lower carbon footprint of intensive systems but fails to mention that intensive systems also have much larger ammonia emissions than extensive systems.


On p49, lines 13-14, the report neglects to show that intensive livestock production dramatically reduces the number of farm workers needed due to mechanisation and reliance on technology41.

P49 lines 24-25: the carbon footprint of ASF per calorie is in general substantially higher than plant-based foods42.

P54, lines 19-21: this fails to point out that the majority of livestock globally are raised intensively43 and therefore do make significantly large contributions to pollution.

P54, line 48: other gases emitted from industrial livestock production include fine particulate matter created from the volatilisation of ammonia44, which contributes to respiratory and circulatory diseases45.

P57, lines 30-33: animal diseases from livestock also negative impact wildlife46 and potentially cause species extinctions of wild animals. This may in turn influence proper ecosystem functioning.

P57 section 3.4.3: antimicrobial resistance is far more of a problem in intensive systems than extensive47.

P63, lines 26-27 Intensification is however at the expense of increased ammonia emissions12, possible reduced animal welfare48 and reduced nutritional quality of meats49.


we should not necessarily increase nitrogen content of all feed for livestock, as CAFOs tend feed crops high in nitrogen already, causing a significant amount of nitrogen pollution.

Given that the report uses projections to 2050, and the development of new foods continues at great pace, the report neglects to mention the potential for the production high quality foods via novel meat-substitutes, such as mycoprotein. These novel products are beneficial for health, nutrition and environmental outcomes. It could be worth including this topic in the report.

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

Yes, although there are benefits from using other participatory decision-making tools such as the Delphi technique or multi-criteria decision analysis.

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

What not to do: broiler chicken intensification case study in the United States

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This case study shows that intensification of chicken production has caused increased localised pollution and has threatened livelihoods. For example, 71% of US broiler farmers now live below the poverty line and are often crippled with debt due to having to pay out large sums of money for investing in housing and equipment necessary for intensive farms. This intensification has caused broiler meat to become fatter and unhealthier. This is not only bad for our nutrition (as it can increase the likelihood of obesity and malnutrition) but also raises concerns of zoonoses and antibiotic resistance due to the highly concentrated, large flocks present in industrial-scale chicken farms. Lastly, animal welfare has been highly compromised. This is a clear example that intensification to increase production does not result in higher nutritional quality of meat and has negative knock-on effects on social and economic sustainability.

Win-win China case study: dual purpose chickens56 57

On a farm close to Beijing, a slower-growing, dual-purpose traditional breed of chicken is used to rear male chickens for meat and females are raised primarily for eggs and then used for meat at the end of their laying lives. The products receive premium prices at market due to their high quality. The farm is free range, offering higher welfare to the animals, which enjoy good veterinary health outcomes: mortality is low and antibiotic use is sparing (which reduces the chance of antibiotic resistance in humans). It is also likely to be environmentally resilient as the feeds are largely grown locally and the manure and crop residues are digested to produce energy. Water pollution is also low.

This model of farming could be applied elsewhere, bringing many benefits. In the UK, research shows that chicken and eggs from free-range and slow-growing breeds are of higher nutritional value than from intensive farming of fast-growing breeds,58 which have clear positive implications for individuals needing to increase the nutritional value of their foods. The successes of this farming model can be used to secure good food and farming elsewhere. It can be used to resist industrial-scale intensive farming with fast growing breeds that result in: wasteful practices; high grain use and associated vulnerability to feed price-shocks, heat and water stress; higher pollution and poorer outcomes for animals, health and livelihoods. Combining chicken farming with agro-forestry is an additional step that could bring multiple benefits to social, economic and environmental security59.


56 https://www.ciwf.org.uk/media/3818895/china-chicken-case-study.pdf


Water-efficient livestock production to improve social, economic and environmental sustainability

In semi-arid areas of Africa such as Ethiopia, access to simple technology for storing water can dramatically improve the lives of people and farm animals. This study found that year-round access to water increased farm yields up to ten-fold, improved food security, nutrition and farm animal welfare and reduced poverty in small-scale farming. This was achieved by using water harvesters that store excess rainfall runoff collected during the rainy season. The water harvester led to crops being irrigated during the dry period, which improved yields and allowed for multiple harvests, including a second crop for livestock fodder. Incomes increased tenfold by using this simple technology and helped to safeguard the farmer’s livelihood.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

There is an omission when recommending that developing nations must intensify livestock production: the report does not discuss the livelihood implications of intensification i.e. that this usually brings a reduction in labour force, as has been seen in the West. If alternative jobs for workers exist, this may not pose a threat (as with China; Box 6), but if not, rising unemployment could become a serious problem. In developing nations, agricultural workers tend to come from poorly educated backgrounds and may not have any other option for employment. Intensification of livestock production therefore not only threatens FSN but the livelihoods of the most vulnerable. Also, intensification of agriculture requires capital input, which adds financial burdens, and possibly debt, on farmers. Ways to achieve SAD that protect and support small-scale family farming and pastoralist farming are needed. Limited attention has been paid in the report to how agroecology can help to create SAD. Lastly, changing farming practices requires some level of risk, which should be underpinned with social-security mechanisms.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

No.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence

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60 https://www.ciwf.org.uk/media/3819837/ethiopia-case-study.pdf

about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Tax measures can also be used to promote high standards of animal welfare by reducing the cost for farmers of implementing higher welfare production. For example, when calculating net profits for tax purposes, more generous capital allowances could be given to investments for high welfare farming. Governments already use differential capital allowances to reward activities that they wish to encourage; for example, enhanced capital allowances are given in some countries for businesses that use environmentally beneficial technologies. Fiscal instruments could be used to encourage consumers to purchase high welfare animal products. In countries which charge VAT on food, the price paid by consumers for high welfare products could be reduced by placing a lower VAT rate on such food.

Around 40% of the EU budget goes towards funding agriculture. This money could be better directed towards promoting sustainable and agro-ecological approaches (part of Pillar 2 of the Common Agricultural Policy), instead of predominantly rewarding high production (Pillar 1), the latter of which is sometimes at the expense of the health of people, livestock and the environment. To tackle overconsumption of ASF in much of the developed world, policies could include meat or carbon taxes or subsidies on plant-based foods.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

One potential gap in knowledge is the accurate valuing the positive and negative externalities of livestock production. Currently, the price of meat does not adequately reflect the externalities that are created due to its production and consumption. We need data on the health, environmental, social, economic and animal welfare costs and benefits (e.g. using true cost accounting) of the four livestock categories used in the HLPE report. One recent report suggests that the annual environmental impact of industrial farming is $3.3 trillion. This report points out that in many countries “there is a worrying disconnect between the retail price of food and the true cost of its production. As a consequence, food produced at great environmental cost in the form of greenhouse gas emissions, water pollution, air pollution, and habitat destruction, can appear to be cheaper than more sustainably produced


alternatives”. Reports such as this will help to highlight the market failures of various livestock production systems and could expose areas where policies can be used to incentivise sustainable livestock production that benefits people, livestock and the planet.

12. Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

The emphasis on intensification of livestock production is overrepresented and does not offer other alternatives to the reader. The report assumes that the only way to tackle FSN is to increase livestock production but ignores the fact that increased food availability does not result in increased food accessibility, particularly to the poor.

Increasing grain-based meat production is projected to negatively impact the most vulnerable and food-insecure, particularly in Sub-Saharan Africa and southern Asia, through competing for human-edible grains. Feeding human-edible crops to livestock is wasteful: from 100 calories of cereal fed to livestock, we only obtain 17-30 calories from meat. This inefficiency detracts from the global food base, and affects the most poor and hungry disproportionately, which exacerbates food insecurity for the already under-nourished. This increased production will intensify associated health risks from non-communicable diseases and environmental problems. Improving FSN for the undernourished requires much more than just producing more food. Enough food is already produced to feed 10 billion people but is currently lost due to wastage (including the waste of calories from feeding crops to livestock and from biofuel production) and overconsumption.

The report lacks evidence on how to sustainably deliver FSN to the people most in need of FSN.

It would be worth noting in the report that fish and invertebrate agriculture are not included in the remit of this report. It would also be worth including the farming of rabbits and ducks in some sections.


of the report as these species make up a large proportion of farmed animals in some areas of the world.69-70.

Conclusion

One of the most important tasks of this era is to develop agricultural and food systems that are effective at both feeding people and delivering the three goals of the FAO whilst not adversely affecting the environment or animal welfare. There is a lack of evidence in the report as to how increasing production of livestock will contribute to this task.

There are nearly 0.8 billion people in the world who are undernourished and would benefit from additional food and nutrition in their diet, which could come from ASF or other sources. However, producing more meat does not automatically mean that the most food insecure peoples will have access to this food. Food availability does not equal food access or FSN. To quote a 2012 journal article “We already grow enough food for 10 billion people and still can't end hunger... To [achieve this] we must end poverty and inequality. For this challenge, agroecological approaches and structural reforms that ensure that resource-poor farmers have the land and resources they need for sustainable livelihoods are the best way forward”71. We therefore should not only focus on an aim to produce more ASF, but to get more nutritious and healthy food to the people who need it, whilst also reducing over-consumption, wasting less, and increasing access to food via poverty alleviation. Reducing food waste is a truly sustainable solution as it uses resources more efficiently and effectively. Reducing overconsumption of food will improve nutrition of the 2.1 billion individuals that are overweight as well as releasing food for others.

We need a new food system that is based on a more equitable, efficient, and effective food distribution. Global FSN is unlikely to be achieved by only increasing livestock production and, if not guided and regulated properly, it could do great damage to the most vulnerable people, animals and environments of our world. We feel that agroecological systems would be more likely to achieve sustainable global FSN.72

69 http://www.ciwf.org.uk/farm-animals/rabbits/
71 Holt-Giménez, E., Shattuck, A., Altieri, M., Herren, H., & Gliessman, S. (2012). We already grow enough food for 10 billion people... and still can't end hunger. Journal of Sustainable Agriculture, 36(6), 595-598.
28. Diana Lee-Smith, Mazingira Institute, Kenya

The report should take on board the issues concerning the Right to Adequate Food and Nutrition as outlined in the attached report recently released (http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/RtFNWatch_EN_web.pdf). In particular, I should like to emphasise the contents of the article on the RtAFN in Africa by me and Davinder Lamba, which refers to urban agriculture, an aspect neglected in the report so far.

Data cited on urban agriculture in Africa clearly show the importance of small-scale livestock production to food and nutrition security of the urban poor and women-headed households in particular. Urban malnutrition is a growing problem due to the fact that many urban poor live in dense, unserviced slums. Obesity in these conditions is linked to lack of proper food due to its unaffordability and reliance on sugars and starches. Data show that keeping urban livestock may be a good strategy as improved food security and child health are linked to consumption of animal source foods (including milk and eggs and not just meat). Improved incomes are also linked to keeping urban livestock. Urban authorities need to put policies and plans in operation to permit and support urban livestock keeping, in order to address the right to adequate food and nutrition.

This is all in the article mentioned. I would like to add that, regarding policy improvements, Nairobi City County, which has an estimated 200,000 small household farmers within its boundaries, has just passed an Urban Agriculture Promotion and Regulation Act (27 August 2015), in conformity with the recognition of the right to food in Kenya's constitution of 2010 and Urban Areas and Cities Act of 2011.

29. Ahmed Sidahmed, FAO TCIA, Italy

The HLPE paper on SAD for FSN including Livestock is a huge literature review work based on Delgado’s Livestock Revolution and Carlos Sere’s work on the Production Systems, and a number of deterministic models. However, the draft, in its current format, is too long, and is not a guiding document. Also the sentences are very long and the conclusions unclear and unspecific. However, the report is still in draft form and is open to reviewer’s comments online. If shortened it should provide a good case on the needed strategies of sustaining Animal Source Foods for Food Security and nutrition especially in the developing countries. The case studies from Australia and New Zealand may not offer universal technical clues (e.g. in the situation of sheep and goats which are mostly raised under semi-extensive or traditional systems; although not being from the developing countries is not a reason for their exclusion. Possible case studies from successful counties that have closer problems would help.

30. Oluwatosin Kennedy Oko, University of Calabar, Nigeria

I want to commend the consultative group that drafted the report. It is well articulated and provides measures on sustainable agriculture in line with FAO mandate. The role of livestock in food security cannot be overemphasized, however little research efforts are geared towards it in most Africa.

I also congratulate the FAO organization for her foresight and initiatives in addressing and meeting the global future needs in terms of food security and sustainability.

31. Barry Cohen, National Algae Association, United States of America

Algae for Food, Feed, Fuels and CO2 Sequestration
Time for a reality check

Algae research for advanced biofuels has sounded like a wonderful idea for decades. It has been rather profitable for universities, researchers and Department of Energy employees for over 70 years. With today’s low fossil fuel prices, this is a perfect time for the DOE to change its mindset that more algae research is needed and use some of the existing algae fuel technologies that have been developed with years of taxpayer-paid algae research that is sitting on shelves at NREL and Washington, D.C. After all, the original goal was not to line the file cabinets at the Patent Office and the DoE with patent filings and new (and seemingly useless) technologies, but to help the US “get off of foreign oil” become self-sustainable and energy independent.

The National Algae Association thinks the DOE Algae Biomass Program /BETO needs to be completely restructured. Instead of accomplishing its mission, it changes it! It’s not enough to change the upper leadership. It’s time to change the staff members who are afraid to shift away from all algae research and who have proven themselves to be incapable of meeting the commercial algae production needs. Someone needs to admit that the Congressional mandate that funds the DOE Algae Biomass Program is outdated and no longer fits the needs for which it was intended. Past algae research grant recipients stated years ago that “all algae technology hurdles had been met. It’s all engineering and scale-up going forward.” Then what did it do? It applied for and received additional research grants!

It takes less than a year to build a commercial algae farm or indoor algae bio-manufacturing facility using lots of proven existing technologies. So what is the hold up in Washington?

NAA has asked the DOE Algae Biomass Program/BETO, its algae research grant recipients, its lobbyists and the media sources that they pay to report on their ‘accomplishments’ to be more accountable when discussing the commercial algae production industry. We have asked that they be more accountable to the US taxpayers who are actually paying them and to be less accountable to the universities it has been supporting for almost a century. Algae does not grow in Washington, DC and never will. Algae technologies sitting on shelves at NREL and at universities have no benefit to the private US commercial algae producers, consumers or the economy, but neither NREL nor the DoE will ever admit to that, let alone hold anyone accountable for the buffoonery.

DOE algae grant researchers have been asked been asked to participate with private industry getting into commercial algae production industry but they admit that they are limited on what they can disclose outside the university research grant. Private industry and investors on the other hand have been patiently waiting to see deployment of commercial production technologies. Nobody at the Department of Energy, nor in a research lab at a university, knows the first thing about deployment – their track records speak for themselves.

NAA is deeply concerned about the huge gap that has been created between the DOE and private industry. Taxpayer-financed algae technologies for fuels need to be deployed into the private sector. The only way this will happen is by taking the DOE Algae Biomass Program/BETO out the process of picking winners and losers without any having commercial algae production experience. If private industry cannot make it happen with everything that has already been developed after spending 70 years and billions of dollars, the grant-recipient university researchers will be faced with a different set of issues.
As some other contributors have pointed out before, the report in its current form is quite hard to read although it contains many important lines of thought. It should be condensed and given a clear structure and coherent argument. There are two main points we would like to emphasize: the importance of local knowledge, and the value of extensive pastoralism.

Importance of local knowledge:

- p.84, Environmental Recommendations. A recommendation should be added: to take local knowledge into particular consideration. Its strategies are known to work for a specific place. Moreover, any measure that is based on local knowledge will be more readily accepted by local stakeholders.

Value of extensive pastoralism:

- p.52, ll.40-42: Have a look and cite: IIED, 2013. Global public policy narratives on the drylands and pastoralism (http://pubs.iied.org/10040IIED.html), which discusses inconsistent narratives with regard to pastoralism.
- p.82, ll.3-4 could be expanded to: “Transforming feedstuffs that are otherwise inedible Global public policy narratives on the drylands and pastoralism (http://pubs.iied.org/10040IIED.html), which discusses inconsistent narratives with regard to pastoralism to humans and utilizing land that is unsuitable for crops in an efficient and sustainable way, on much of the world’s terrestrial land area.”
- p.84, ll.32-34. This point should be specified with examples: “e.g. by giving support to mobile, extensive livestock breeding in dryland areas.”

Miscellaneous comments:

- p.11, l.48 “most people are hungry because they cannot afford food.” Consequently, continued global efforts to reduce poverty should be a main recommendation in the latter parts, but is only mentioned in the narrow context of agricultural development (as a means to lift producers out of poverty). Alleviating the poverty of non-producers is an important challenge that should not be forgotten.
- p.51, ll.37-38 “The experience over many years and many countries demonstrates that the benefits of trade liberalization and globalization clearly outweigh the risks.” Such a sweeping generalization should at least cite a convincing source, otherwise it is mere ideology.
- p.60, Conclusions. This paragraph is very unspecific and vague so far.
• p.85, II.4-5 “Increase farmers’ access to markets, focusing especially on non-distorting measures such as capacity building, credit and market infrastructure.” Here, mentioning the provision of adequate (agricultural) insurance instruments would be a valuable addition.

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33. Dominic Glover, Institute of Development Studies, Brighton, United Kingdom

I thank the HLPE for the opportunity to comment on the V.0 draft of its report. I offer the following suggestions as a contribution to the panel’s work.

First, I welcome the focus of chapter 4 around the task of identifying and developing pathways towards sustainable agricultural development. As a member of the ESRC STEPS Centre I agree that the concept of pathways – multiple, diverse and inclusive – is a useful and practical one to help researchers, policy makers and practitioners create a sustainable future through the integration of social, technological and environmental knowledge and action. I hope that the HLPE will maintain this focus in the final version of chapter 4 and I invite the report’s authors to draw on the insights of STEPS researchers’ conceptual, methodological and empirical contributions over the past decade, including work on agriculture and livestock.

Second, I suggest that the report needs to demonstrate the HLPE’s awareness of the ways in which emerging technologies and novel foods, including various alternatives to conventional meat, may have an influence on future markets and production systems for conventional livestock. These alternatives include edible insects (also known as ‘mini livestock’) and other substitutes for conventional meat, such as protein foods based on algae and fungi or laboratory-cultured meat. This may not be a major topic or one with immediate implications, but it is still significant enough, I believe, to merit brief consideration in a report like this one.

On edible insects, I recommend the recent FAO report on the topic (Huis et al., 2013) and the works cited therein. We included a box on other novel protein foods, with some web links and cited works, in a recent IDS publication on the potential of edible insects as food and feed (Glover and Sexton, 2015, Box 1.1, p.9).

Third, more generically I would point out that some topics discussed in the body of the V.0 draft of the report do not appear in the conclusions and recommendations, or do so in a notably low-key manner. For example, in lines 28—35 the tone implies that in the context of intensification of livestock production (which is acknowledged to imply concentration and specialisation within industrial systems), nothing more can or need be done to acknowledge the continued relevance of small-scale, mixed farming systems than ‘be attentive to opportunities to engage and retain [them] where possible’. This is rather feeble in light of the discussion and works cited in the foregoing chapters of the report.

Finally, I would encourage the HLPE to give greater attention within the report to issues of sustainable consumption, which are touched on here and there throughout the report, but scarcely reappear in the conclusions or recommendations. For example, lines 30—33 affirm that rising demand for animal products need not be taken as a ‘given’ yet, nonetheless, this is more or less accepted, at least implicitly, in the draft report’s conclusions. I think that a flagship review like this one ought to look
more closely and consider more seriously whether inexorably rising demand really is inevitable, and also at whether measures to influence, moderate, or reduce demand for meat and dairy products are at all feasible or realistic — and not simply assume that there is little to be done except plan to meet projected demand. In our own recent foresight study on the potential contribution of edible insects (as an example of a novel food), participants in a scenario exercise found it conceivable that consumer demand for conventional meat might fall, perhaps quite sharply, for instance in response to a major outbreak of zoonotic disease or antibiotic-resistant illness that might be traced to contemporary intensive livestock rearing operations (Glover and Sexton, 2015). We concluded that such a scenario is quite plausible, even if it is not widely anticipated, and our work suggests that the HLPE should take such systemic shocks and surprises into account.

I hope that these comments and suggestions are useful. I am happy to elaborate on them or provide further information if required. I look forward to seeing the revised report in due course.

References


34. Fangquan Mei, Chinese Academy of Agricultural Sciences (CAAS), China

Chapter 3 of the report of SADL is proposed to strengthen the analysis of climate change

Research on climate change may need to reflect the diversity of the results, which will be helpful for choosing the appropriate supportive policies. Trend of the impact of climate change on the increase of grain production in most areas of the world from is similar: from tropical to north temperate zone, the grain production changes from a reduction to an increase gradually, and the overall production keeps stable. Research team led by Prof. Xian Xin from China Agriculture University comes out with following results:
Xin et al. (2013) investigates the impacts of climate change on China’s grain output using rural household survey data. Their results indicate that the overall negative climate impacts on the PRC’s grain output range from -0.31% to -2.69% in 2030 and from -1.93% to -3.07% in 2050, under different emission scenarios. The impacts, however, differ substantially for different grain crops and different regions. The substantial regional differences will also induce changes in agricultural interregional trade pattern. Xin et al. (2015) investigate the climate change impacts on this trade pattern and their results indicate that Northwest, South, Central, and Northeast China will see increases in the outflows of agricultural products in 2030 and 2050. Conversely, outflows from East, North, and Southwest China will decrease.

References:

35. Camillo De Camillis, LEAP Partnership, Italy

General comments:
The HLPE draft report on “Sustainable Agriculture Development for Food Security and Nutrition, including the role of livestock” is successful in reflecting the different views of stakeholders and the suite of pressures and sustainability dimensions.

The central role of livestock in agriculture is well highlighted yet could be further reinforced by stressing the synergies with other agriculture sectors. Cropping systems, timber, aquaculture benefit from nutrients cycling triggered by livestock. Manure is essential in securing key soil functions such as physical stability and support that is essential for plant growth.

In order to discuss about sustainable food systems also in the context of food security and nutrition, it is very helpful the commentary provided on reference definitions on page 16. Nevertheless, it is highly recommended that the definition of sustainable food systems provided as footnote on page 21 is made more prominent and placed in the body text. Indeed, in order to articulate discussion on food security and nutrition, the whole report could be built on such definition. In order not to compromise food security and nutrition of future generations while also taking action to secure nutritious food to current generations, we need plausible future-oriented scenarios and pathways identified and assessed by sound tools such as reference integrated sustainability assessment methodologies and data.

Besides providing an overview of the different views on livestock production systems, this report is lacking in structure. The responses outlined at the end of the report lack supporting rationale and are often in contradiction.

Once highlighted all sustainability facets at the beginning of the report, more emphasis should be provided on the importance of reference data and life cycle sustainability assessment methods as a part of a toolbox in support of policy making. Without building consensus on reference methods and data, pathways towards sustainable agriculture will always be questioned from a methodological
perspective and dialogue among stakeholders won’t move forward. The proliferation of environmental assessment methods has, in fact, led to diverging messages which hamper any improvement.

In order to meet the SDGs, linking assessment tools (like the ones that the LEAP Partnership is developing) to the development of alternative future-oriented scenarios is fundamental. Life cycle assessment could be used to assess alternative scenarios and identify suitable pathways (http://bookshop.europa.eu/en/sustainability-assessment-of-future-oriented-scenarios-pblBNA26088). Section 2.1.2 should have a more prominent role in the report and should be directly linked to the figure on page 22 as well as to final recommendations.

To assess and monitor over time the environmental performance of livestock supply chains, the LEAP Partnership guidelines are the tool for livestock production systems and I would recommend mentioning them in this report. (http://www.fao.org/partnerships/leap/resources/resources/en/; http://www.fao.org/partnerships/leap/resources/public-review/en/).

The figure on page 22 highlights very well the role of both production and consumption in the sustainability journey. At the bottom of the figure, the environmental compartments (biodiversity, nutrient cycles and water) are well placed. Nevertheless, soil quality should have a role and it could help readability a clearer distinction between production inputs (i.e. resources such as labour, land, water, nutrients, energy) and impacts (e.g. biodiversity, eutrophication, climate change, human health).


What is titled on page 52 as environmental sustainability, it is actually more about resource use. Subsections on land and water (3.3.2 and 3.3.3) lack detail on the plethora of angles from which indicators and assessments have been produced. Impacts from land use and (direct and indirect) land use change are not sufficiently discussed. Soil quality indicators are not mentioned. The wide array of approaches, indicators and assessments on the water footprint of livestock does not emerge from 3.3.3. A section is missing on the positive and negative impacts of livestock on biodiversity. In this respect, inspiration may come from the LEAP report “A review of indicators and methods to assess biodiversity – application to livestock production at global scale.” Principles on the assessment of impacts of livestock on biodiversity are also recommended can complete the picture on biodiversity.

The use of pesticides, herbicides, etc. in agriculture – including feed production- might result in impacts on terrestrial and aquatic ecosystems as well as on human health. An in-depth commentary on this impact category is highly recommended.

It should also be better articulated the relationship between chemical fertilizers and land degradation.

Section 3.3.4 on page 55 should be moved under section 2 “trends and drivers”. Building on the classification by Robinson et al. (2011) mentioned on page 31, the LEAP Partnership Guidelines on feed, poultry, small ruminants, large ruminants and pigs supply chains provide an overview of the major production practices worldwide. Such text was put together by researchers from all continents and it is recommended to include such classification in the body text of section 2.3.

On page 41 line 17, I recommend quoting the LEAP guidelines and databases that are all based on life cycle thinking. http://www.fao.org/partnerships/leap/resources/public-review/en/
It is strongly recommended to comment how the figure on page 67 fits in the loop on page 33 of the FAO report “Building a Common Vision for Sustainable Food and Agriculture” http://www.fao.org/3/919235b7-4553-4a4a-bf38-a76797dc5b23/i3940e.pdf

On page 68, line 17, it is recommended to include the following text:

“Another MSP is the Livestock Environmental Assessment and Performance (LEAP) Partnership. The LEAP Partnership focuses on the development of recognised sector specific guidelines to assess environment performance of livestock supply chains. LEAP aims at supporting the transition towards more sustainable food and agriculture by improving the environmental performance of livestock supply chains while ensuring social and economic viability. LEAP is a first-of-its-kind, multi-stakeholder partnership of Governments, Private Sectors, NGOs and CSOs, and other stakeholders united by a shared commitment to the sustainable development of the livestock sector. Guiding principles of the LEAP partnership include: global, inclusive, consensus, transparency, scientific, comprehensive, continuous improvement and adoption. “

Specific comments:

On page 43, line 44, it is maintained that “small-scale mixed systems in the tropics and subtropics have a significant role to play...”. To my knowledge, small-scale mixed systems also have a major role in other areas.

Meat and livestock sector/products are often presented throughout the report (see pages 17, 26) as two separate categories while meat is part of the livestock sector and products as milk, fiber, manure are also livestock products.

36. Ian Hollingsworth, IUSS, Australia

My comments relate to improving the coherence of the sustainability argument by addressing issues of food losses, waste and inequalities in consumption and the role of livestock industries in this report. There are significant environmental risks associated with agricultural intensification if the production system leaks water, nutrients and genetic material. Bringing consumption physically closed to production, increasing the amount of crop production waste used as livestock feed and the amount of livestock waste used as fertilizer in soil based crop production systems would address the critical issue of integrity in agricultural production and marketing systems. I think the document is too long and is drafted with the clear intention of making a case for agricultural intensification, without carefully conceptualising current agricultural production, and food security and nutrition. An accurate conceptual framework is needed.

p17 line 10, "adequate, safe, diversified and nutrient-rich food for all that contributes to healthy diets and pointed to resource scarcity, environmental degradation, unsustainable production and consumption patterns, food losses and waste and unbalanced distribution as root causes."

This is the critical issue that I think the case for integrated livestock and crop production systems addresses.

p21, line 8, "Transition to more sustainable food systems involves both qualitative and quantitative changes in the 8 relationships between society, nature, energy and material flows within the food system. Sustainable agricultural development encompasses crop cultivation and livestock production, with links to forestry, fisheries and aquaculture, practised across a wide diversity of ecosystems and landscapes."
Aquaculture receives no further mention in the document despite its capacity to use lower quality feed sources, accelerating demand, higher and more efficient meat production rates than terrestrial livestock systems, and much higher rates of return on investment.

p22, line 8, Figure 1 Conceptual framework showing linkages between sustainable agricultural development and food security and nutrition

Where is livestock production in this diagram? It should be linking between waste & losses from consumption to production systems. This diagram does not conceptually represent the integration that is needed in global, sustainable production systems, stresses such as geographically localised over consumption, losses and waste and needs to be revised.

p25, line 50, "In conclusion, several pathways are possible to feed the global population of over 9 billion people in 2050. These pathways can be seen as changes in diet (including fish), increases in agricultural productivity, changes in land use, greater reliance on trade, reduction in food losses and waste, and reduction of inequalities. Among these pathways, livestock has a key role to play and is part of the solution (Erb et al., 2009)."

p41, line 38, Food losses and waste - A figure of 1/3 of food production lost as waste is quoted, "this appears to hold for all regions, although losses are somewhat higher in sub-saharan Africa". The losses are apparently difficult to measure accurately.

p65, line 49, Food losses and waste are an identified response under economic challenges

p81, line 31 Food losses and waste and unhealthy overconsumption of animal-based produces are supply stresses that are overlooked and not adequately addressed in favour of increasing agricultural intensification.

p85, line 11 Refers to actions to reduce food losses in developing countries and waste in developed countries.

p85, line 14, Recommends that food losses and waste are disaggregated according to each livestock product.

Reasonable, but identifying where one livestock waste is another livestock feed is critical to more sustainable production.

37. Fangquan Mei, Chinese Academy of Agricultural Sciences (CAAS), China

Suggestion for supplement of Support of ICT technology apply for the improvement of SADL

To support Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock, our aim is to research and apply the novel ICT technology into agricultural product/food safety management, control and trace-ability and reflect the technological responses for different dimensions of sustainable agricultural development.

Prof. Chunjiang Zhao, the Director and Chief Scientist of National Engineering Research Center for Information Technology in Agriculture(NERCITA) China is leading one of the largest and the most influential research institutes on information technology for agriculture in the world. They Put forward a series of research resultsPut forward a series of research results and has a certain reference value to strengthen for SADL:

For social challenges: Develop science and technology popularization video, canton and programs, to provide and disseminate science-based evidence on novel technologies for SADL.
For economic challenges: Establish the cold chain environment monitoring equipment fitting the different conditions; Build on a comprehensive model for predicting shelf-life of fresh agricultural products; Develop cold chain environment controlling system based on the environment-mass-energy balance with CFD method; Study on energy consumption evaluation for different control modes of cold chain logistics. We hope to reduce food losses and waste through above ways.

For environmental challenges: Use Big data, Internet of Things, Cloud Computing, etc. in pest early warning with application in climate-smart and precision agriculture, combing different disciplines, such as agronomy, ICT, meteorology, phenotyping and biology, which will provide bases for predicting and control pest outbreaks.

For health and animal welfare challenges: Based on the animal behavior studies and internet of things, we plan to improve monitoring and control system for animal diseases for rapid detection at early stages. Then we develop a holistic health breeding system for implementing good practice for animal care and a whole supply chain trace-ability system with RFID and novel barcodes to provide better food information/labelling for consumers. At the consumption terminal, we will design and implement a healthy diet recommend system interconnecting with smart household electrical appliances and precision logistics for agricultural products and food.

Related Reference

38. Slow Food International, Italy

Slow Food has been actively working to promote a holistic approach to food and agriculture for many years and good animal welfare practices are a fundamental part of this. They are important not only because they respect animals as sentient beings, but also because they benefit farmers, consumers and the environment.

Slow Food believes that animals used for food should be given a life free of pain and fear in which they are free to express their natural behaviors.

Each year the welfare of billions of animals raised for their meat, milk and eggs for human consumption is seriously compromised. Animal farming throughout the world has become increasingly intensive, where maximum production and profits are prioritized, and animals are treated as commodities.

As the consumption of animal products continues to increase, it has become necessary to confront these problems in order to safeguard the health of citizens and the environment, and guarantee that small-scale farmers can thrive in their activities while ensuring that the welfare of animals is respected.

Animals are sentient beings – they can suffer pain and distress or be happy and enjoy life. We therefore have a responsibility to ensure they are kept in humane farming systems, allowed to live a
life free from pain and mental distress and able to express their natural behaviors, and are slaughtered humanely.

Slow Food believes that the way we treat farm animals is intricately linked to our general well-being and that of the planet.

Animal welfare is of crucial importance to the approximately 1 billion people (FAO) that depend on animals as a source of income and food: A secure supply of food depends on the health and productivity of animals, which in turn depend on the care and nutrition these animals receive.

Factory farms reduce animals to mere machines, subject to confinement and mutilations. These conditions make animals more prone to diseases and as a result, they are routinely injected with vaccines and antibiotics. This extensive use of antibiotics poses a risk to those who consume their meat and contributes to the emergence of antibiotic-resistant bacteria: a growing public health concern.

Making animal welfare a priority is an added value for both small- and large-scale farmers. Providing good living conditions for animals results in better health and less stress for the animals, and subsequently fewer diseases and a reduced use of drugs, lower production costs and improved product quality in terms of both taste and nutrition.

Animals pay a harsh price in the current system. Factory farms reduce animals to mere machines and commodities. They are packed into tight cages or confined to small spaces where they spend a short but painful life. During this time they are often subjected to mutilations, their beaks are trimmed, tails docked and horns removed in order to avoid injuring themselves or their companions due to the stresses of being condemned to a life less than natural. After having spent the entirety of their lives in these conditions, they are then transported to slaughterhouses, often travelling for many hours at a time and in gruelling conditions. They feel the stresses and strains of not being able to express their natural behaviours, often left in the hands of people who have not received adequate training, denying them the compassionate and respectful treatment that a sentient being deserves. Living in these conditions makes animals more prone to diseases. In many intensive farms they are therefore routinely injected with vaccines and antibiotics, posing a risk to those who consume their meat.

In recent years, meat consumption has not only remained high in America and Europe, but has consistently grown in China, India and generally within those countries where a wealthy new middle class is emerging alongside a strong demographic increase (the Indian population, for instance, has grown by 200 million inhabitants every 10 years). A global surge in the demand for meat has resulted in a corresponding growth of the industrial production of meat and, subsequently, the concentration of power in the hands of the few large companies that can satisfy the market’s demand. The transformation of the animal livestock industry and the production of meat have a long list of negative effects on the environment, human health, animal welfare and social justice.

The animals that we raise for food in turn need to be nourished to grow and produce, but the dietary resources they consume are significantly higher than those they produce in the form of meat, milk and eggs.

We must also recognise an overall increase in awareness regarding our treatment of animals, which has resulted in the adoption of lifestyles that increasingly abandon or limit the consumption of animal products and a rise in stricter animal welfare laws.

Many eminent voices from a range of areas have been working to promote the responsible consumption of meat, by choosing a high quality product and limiting the average intake. Slow Food believes that promoting a strong animal welfare ethic encourages the consumer to eat less meat.
because it reduces the amount of meat produced and supports those who raise their animals according to the highest standards.

Every time you shop, remember that your individual choices can influence the positive change of the global food production system. When it comes to meat, you can really leave your mark.

39. Surender Bhardwaj, University, India

The use of plant extracts as antimicrobial agent to control plant pathogens is feasible and is cost effective as the material used is inexpensive. The major benefit is its being eco-friendly.

“Eco-Friendly Approach to Control Diseases of Crops”


40. Fangquan Mei, Chinese Academy of Agricultural Sciences (CAAS), China

Supplement: It is the study of international cooperation on food security and nutrition in China that supported by WFP, IFPRI etc. for reference of further study of SADL.

China’s progress on the first Millennium Development Goal (MDG1) – eradicating poverty and hunger – is widely acknowledged to be a key driver in advancing this goal globally. The economy has grown annually at the rate of 9% since the beginning of reforms in 1978. Improvements in food security, health services, incomes, family planning and care practices have led to great dropping in under-nutrition rates, from 272.1 million in 1990-1992 to 158 million in 2010-2013. Of the 256.6 million fewer undernourished people in the world between 1991 and 2012, 105.9 million (or 41%) were in China (World Bank, 2014).

According to a WFP/IFAD/FAO funded study on food security status in China (Yunlai Xiao et al, 2009), it was indicated that there were 91 million rural people in 12 out of 31 provinces affected by food insecurity, mainly concentrated in middle and west of China. The MDG Joint Programme “Improve the nutrition, food safety and food security for China’s most vulnerable women and children” (Fengying Nie et al, 2011) found that 15.2% of the surveyed households in poverty counties in western rural China is food-insecure and these households have some characteristics in common. The heads of food-insecure households tend to have less official education, less informal training and higher illiteracy rate than those from food-secure Households which was assumed to reduce their skills on agriculture production and opportunities for skilled labour. In rural areas, rearing of livestock has double benefits: it provides meat consumption, and it is a useful coping strategy when encountering shocks as it can be marketed to earn income. Food-insecure Households were found to have less livestock, pig for instance than food secure Households. The majority (75%) of the food secure Households have at least one pig, while only half of the food-insure Households have.

When an in-depth study evaluates the nutrition status, the story becomes more challenging (Fengying Nie et al, 2014). The food consumption in poor areas is lack of diversity, consumption mainly including staple food, vegetables, pork. Few households consume fish and shrimp, dairy products, beef and mutton. 24.3% of households can not meet the standards of energy intake. And this proportion is higher than the estimation with Food Consumption Score (FCS) which only counts the food consumption frequency. And the situation becomes worse when calculating protein. Around 40% of households are lack of protein intake, especially the high-quality protein (soy protein, animal protein) intake.
But the diet change is motivating larger demand of animal source food which leads to improvement of food security and nutrition, especially in rural China where the growth rate of average annual income surpassed the urban income continuously in the last 5 years. The great achievement in precise targeting poverty reduction, effective policy support in value chain development, the resilience enhancement of social protection and the new food security and nutrition strategy will guarantee a positive expect for eliminating poverty by 2020 and ending hunger and undernutrition by 2025 (IFPRI, 2015).

Reference


41. Emily Alpert, Agriculture for Impact, United Kingdom

Dear HLPE,

Thank you for the opportunity to comment on and provide feedback on the V0 Draft Report Sustainable Agricultural Development for Food Security and Nutrition, Including the Role of Livestock.

We look forward to forthcoming versions and the final report.

Kind regards,

Agriculture for Impact

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

Overall, the document is interesting and informative and we agree on the linkages it makes between food security, nutrition and livestock. The report addresses all aspects that should be covered apart
from aquatic livestock. As fish and seafood are an important livestock for many poor communities, the challenges that these communities face with respect to overfishing, pollution and climate change should at least be referenced.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

In general, the report covers the key trends and challenges, but there are some concerns such as climate change or gender inequities that do not receive as much attention (with regards to the length of their sections) as topics such as the implications of the now defunct global trade negotiations. For a recent summary of the impacts of climate change on agriculture and micronutrient deficiency in Africa, please see the 2015 Montpellier Panel report “The Farms of Change: African smallholders responding to an uncertain climate Future.”

For a look at how the livestock sector in Africa can be improved to address the challenges posed by climate change and to increase smallholder access to improved breeds for the purposes of increasing dairy production and reducing herd size, please see the Agriculture for Impact Sustainable Intensification Database section on Livestock Breeding. This section includes 9 case studies of innovations to improve genetic material and breeding of livestock in Africa.

Page 43, it would be good if the section on ICT for agriculture was expanded. ICT/digital technologies for agriculture will be very important and should be addressed more thoroughly. See Kofi Annan’s and Sam Dryden’s recent article in Foreign Affairs: https://www.foreignaffairs.com/articles/africa/2015-10-16/food-and-transformation-africa?campaign=kofi

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

The categorization is helpful, but in both the case of crop and livestock production, the report would benefit from including a definition on what is intended by or constitutes sustainable agricultural development for food and nutrition security. Clearly this is a highly contested subject, but in order for the report to be effective in recommending policy response and actions, at least a discussion on the different theories or definitions is essential; otherwise the policies or actions are not positioned towards achieving any particular outcome.

With respect specifically to livestock, it would be important to clarify that the majority of livestock-related deforestation is the result of land clearing to grow feed crops rather than to create more space for grazing (page 43). It would also be useful to recognize that crop residue can have multiple uses, and that it is not solely used for cattle feed. In particular, crop residues are particularly important as cover crops to help improve soil fertility and these trade-offs can be challenging for farmers (page 35). Similarly, animal manure is not always a readily available fertiliser and it too can be difficult to collect especially when animals have large grazing areas and land tenure is not secure or dung is used for purposes such as shelter construction or cooking fuel. All of these trade-offs are important to consider when trying to arrive at policy responses or actions aimed at improving both social and environmental sustainability concurrently.
4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

The opportunities offered by and the challenges presented by an emerging bioeconomy – the subject of the 2014 GFFA (Global Forum for Food and Agriculture) – could be included. This goes beyond the use of feed stock and grains for biofuels and looks at the wider manufacturing of bio-based products such as bioplastics. The German Bioeconomy Council offers a wide array of resources on the subject: [http://www.biooekonomierat.de/en/](http://www.biooekonomierat.de/en/)

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

The Agriculture for Impact Sustainable Intensification Database explores these concepts in significant detail. You can access information, case studies and multiple resources on the cultural and economic considerations and challenges to achieving greater food and nutrition security through the lenses of building human and social capital and strengthening enabling environments here: [http://ag4impact.org/sid/socio-economic-intensification/](http://ag4impact.org/sid/socio-economic-intensification/)


We would also recommend that increasing income as a means to improve nutrition and livelihoods should be made more explicit in the report.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there
evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

This was found to be a gap in the content of the report, precisely, what will incentivise farmers to become better stewards of their environments? And are there practices and interventions that can generate multiple benefits to soil and water quality, lower carbon emissions in addition to increasing food availability and biodiversity? Land tenure is clearly one well accepted pre-requisite for resource poor farmers to make investments in their farms, but so too could payments for environmental services and carbon credit programmes. The Montpellier Panel report “Small and Growing” addresses ways in which smallholder farmers can be supported to improve their farms and engage in upstream activities within the agricultural value chain, whereas both the Montpellier Panel reports “The Farms of Change” and “No Ordinary Matter,” look at methods for improving soil fertility, lowering carbon emissions and demonstrating how farmers can sequester carbon in the soil if given the right incentives to elicit behaviour change.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Governments and international organizations would benefit tremendously from better soil data. Here are a number of initiatives and references that could be consulted to assist in developing policies for protecting against and reversing land degradation:


12. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

KEY ASSUMPTIONS

Overall, the document is interesting and informative and we agree on the linkages it makes between food security, nutrition and livestock. The report addresses all aspects that should be covered. However, it is important the tone and language of the report remains neutral and reflects upon different approaches or technologies objectively; at times the language reads as biased towards the concept of agroecology. We would prefer that different approaches and interventions are explored as appropriate to the particular climate, environment, socio-economic circumstances, and interests of those populations or groups that the support is intended. In this case, it also may be helpful to explore how different types of interventions can be used together, rather than presupposing that approaches at different ends of the political spectrum cannot be complementary or synergistic.

Further along these lines, the report also seems to adopt a number of value judgements and assumptions that may not necessarily provide a helpful framework for improving sustainable agricultural development or building more sustainable global food systems in support of food and
nutrition security. For example, the report assumes that large equals bad and small equals good. (See: Page 30 unclear distinction between entrepreneurial and corporate and Page 31, Ploeg ‘constellations’). However, it might be more constructive to evaluate the farming or employment practices utilized rather than farm size as a determinant of beneficial impact to individuals, communities or the wider environmental landscape. Indeed, there are very large farms that practice conservation agriculture (see recent discussion at the World Food Prize here or other models that may find efficiencies in sharing resources and activities but promote community and or smallholder inclusion in their operations.

Additionally, mechanization does not necessarily lead to industrial agriculture (see Page 34). Mechanization can also occur and is very beneficial at small scales and helps smallholder farmers or cooperatives improve production and create greater value from their involvement in the agricultural value chain. For instance, the introduction of machinery can also generate the need for services such as part replacement and repairs that can help to generate rural employment. This should be reflected in this paragraph.

Another assumption in the report is that the use of fertiliser is unequivocally harmful and does not have a place within the concept of sustainable agricultural development. While fertiliser may be overused and improperly used in many cases – and this should be addressed – ideally through improved input markets and extension services that can offer fertiliser combinations that are suited to the agro-ecologies in which they will be applied and applied correctly and sparingly. The Montpellier Panel has highlighted the benefits – social and ecological – that can be achieved with microdosing. Please see the report “Sustainable Intensification – A new paradigm for African agriculture” and the Agriculture for Impact Sustainable Intensification Database section on Microdosing for understanding the pros and cons of these approaches as well as multiple case studies. Additionally, the 2014 Montpellier Panel report on soils, “No Ordinary Matter,” references a long-term crop trial from Kabete, Kenya where the use of manure and fertiliser produced the best maize yields over a thirty year period and also improved soil fertility. Here is the reference to the original study:


MARKET LINKAGES AND DRIVERS FOR IMPROVED FARMING PRACTICES

The narrative of the report is disconnected over the issue of production. The ‘over-reliance’ or ‘over-emphasis’ on production as a measurement of food and nutrition security or a subject of research and evaluation metrics is important to highlight. However, one major driver of food and nutrition insecurity in remote rural areas is the poor connection to local markets to access inputs or sell produce, often leaving this farmers physically disconnected from both resources (eg seeds or finance) as well as incentives (market demand or price information) to grow enough to feed themselves, their families and have a surplus to sell to acquire supplemental foods needed for a diverse and nutritious diet. In addition to the projected impacts of climate change on production and food availability, it would appear that increasing food production, especially for those groups who rely primarily on their own production to meet their caloric and nutritional needs, should be considered as one of the “priority challenges” as identified on Page 45.

Similarly, it would also follow that farmers need to be better connected to markets to access information, credit, training and extension, to diversify their production and their diets, but also for the purposes of improving their farming practices to become better stewards. Beyond the preservation of natural landscapes and biodiversity, the ability to improve soil fertility, conserve water resources, or
reforest areas won’t happen without financial support and training. Yet these changes are crucial to both improving food and nutrition security and creating sustainable farming systems. We request that the HLPE consider addressing these issues and linkages in the report.

ADDITIONAL COMMENTS

1. On Page 18, that discusses the concept of Sustainable Intensification, it would be useful to expand and define the three approaches (genetic, socio-economic and ecological) per Conway (2012). This could be enhanced with additional resources produced by the Montpellier Panel and Agriculture for Impact:

   - Sustainable Intensification database: [http://ag4impact.org/database](http://ag4impact.org/database)

2. Page 22, figure 1 is extremely unclear. It should also be reflected that climate change impacts all stages: production, sustainable agricultural development, food and nutrition security and consumption. Could it be more explicitly reflected that climate change has a considerable impact on the nutritious value of crops but also on the delivery of food to consumers?

3. Page 46, women and smallholder farmers should be identified as vulnerable groups.

4.2. FAO Inter-departmental Working Group on Antimicrobial Resistance

Dear Sir / Madame,

On behalf of the FAO Inter-departmental Working Group on Antimicrobial Resistance (AMR-WG*), I am pleased to submit the attached comments and contribute to this e-consultation.

Best Regards,

Alessandro Patriarchi and HendrikJan Ormel

Coordinators of the AMR-WG

Comments provided by the established FAO Inter-departmental Working Group on Antimicrobial Resistance (AMR-WG)

The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and 44 oilseeds), and international trade?

- The report identifies Antimicrobial Resistance (AMR) as a challenge under Health and animal welfare (para 3.4.3, page 57, line 34). This paragraph should be further elaborated
focusing on the Antimicrobial Usage (AMU) in agriculture (prophylactic use, therapeutic use and as growth promoters) including plant agriculture and commercial aquaculture.

• The spread of AMR microorganisms and related genes and antimicrobial residues into the environment (waters, land and soils) as result of wide application and poor waste management in livestock production is an aspect that should be included in para 3.4.3 of the report and integrated in other paragraphs within the report (e.g. 3.3.2 and 3.3.3) as challenges to be faced in the present!

• On page 57, line 25. The report highlight that animal operation produce waste, including manure, which contaminate air, soil and water with pathogens and toxins. The authors could consider the inclusion of antimicrobial residues (associated with the presence of bacteria resistant to antimicrobials) that can spread in the environment and in the food chain (please refer to reference listed below).

• In chapter 3.5, page 59. Table 1. The table refers to challenges of current production systems that need to be overcome to become sustainable. Antimicrobial resistance is listed among these challenges, but only for Intensive pig and poultry livestock systems. The authors could considerate the inclusion of other relevant livestock (e.g. cow and calves, fish farming etc.).

• In chapter 4.3, Page 63, line 55. The report lists key issues or choices that need to be taken into account by countries in considering alternative agricultural production pathways. The “prudent and responsible use of antimicrobials” should be among these key issues.

• In chapter 4.4 page 65, line 22. A checklist of possible responses is given.
  o Under “Environmental challenges”, the authors might consider to add: “Use guidelines on the prudent use of the antimicrobials at production level”.
  o Under “Health and animal welfare challenges”, add bullet points “Adopt good practices in animal husbandry and health aimed at reducing the use of antimicrobials and the risk of development and spread of antimicrobial resistance”, “Develop recommendations for the use of alternatives to the use of antimicrobials in food and agriculture”, Develop sustainable husbandry practices to reduce non-therapeutic use of antimicrobials agents in food and agriculture.

• In chapter 5, page 84, under Environment section (line 14), add bullet point “Antimicrobial Resistance (AMR) spread into the environment – promote the prudent use of antimicrobials in food and agriculture to reduce the spread of antimicrobial resistance in the environment”
  o Under section Health and animal care (line 21). Please substitute the term “antibiotics” with “antimicrobials”

References:

Thomas P. Van Boeckel and colleagues have recently presented the first global map (including 228 countries) of antimicrobials consumption in the livestock sector worldwide. The study estimates that in 2010, over 63,000 tons of antimicrobial have been used in the world and their use will increase by 67% by 2030.

In agriculture, antimicrobials are extensively used principally to treat (therapeutic use) and prevent (prophylaxis use) animal and plant diseases but can also be used as feed additives to increase production (growth promotion). Their use in the agriculture sector does contribute to food security, food safety, animal welfare, prevention of zoonosis, protection of livelihoods and animal resources.


Antimicrobial residues can spread in the environment and in the food chain and have been associated with the presence of bacteria resistant to antimicrobials (Martinez and Baquero, 2009, Courvalin, 2008) suggesting that the environment and food can act as conduit of the genes responsible to confer resistance.


43. Jackeline Londoño, Instituto Colombiano de Bienestar Familiar, Colombia
Los comentarios fueron incluidos dentro del documento, el cual se adjunta

44. Margarita María Lopera, Ministerio de Ambiente y Desarrollo Sostenible, Colombia
Con respecto al documento se sugiere de manera general reorientar el enfoque conceptual (Intensificación Sostenible) y retomar los principios de la agroecología a saber (Altieri 1991)[1]:

- Aumento de la biodiversidad tanto sobre como debajo del suelo.
- Aumento de la producción de biomasa y el contenido de materia orgánica del suelo.
- Disminución de los niveles de residuos de pesticidas y la pérdida de nutrientes y agua.
- Establecimiento de relaciones funcionales y complementarias entre los diversos componentes del agroecosistema.
- Optima planificación de secuencias y combinaciones de cultivos y animales, con el consiguiente aprovechamiento eficiente de recursos locales.

Entre las acciones enmarcadas en estos principios se encuentran:

- Manejo de sistemas agroforestales
- Producción y uso de abonos orgánicos.
- Manejo de coberturas verdes.
Acciones para el ahorro y uso eficiente de agua y energía.

Cabe anotar que según Altieri y Nicolls, 2000 [2]: “El enfoque agroecológico considera a los ecosistemas agrícolas como las unidades fundamentales de estudio; y en estos sistemas, los ciclos minerales, las transformaciones de la energía, los procesos biológicos y las relaciones socioeconómicas son investigados y analizados como un todo. De este modo, a la investigación Bases agroecológicas para una agricultura sustentable agroecológica le interesa no sólo la maximización de la producción de un componente particular, sino la optimización del agroecosistema...”

Los mismos autores señalan que[3]: “La agroecología provee las bases ecológicas para la conservación de la biodiversidad en la agricultura, además del rol que ella puede jugar en el restablecimiento del balance ecológico de los agroecosistemas, de manera de alcanzar una producción sustentable. La biodiversidad promueve una variedad de procesos de renovación y servicios ecológicos en los agroecosistemas; cuando estos se pierden, los costos pueden ser significativos”.


45. Francisco Javier Colmenarejo Martín, F.E.P. Federación estatal de pastores, Spain

Un saludo a todos y muchas gracias por dar la oportunidad de que los ganaderos en extensivo y trashumantes podamos decir nuestras inquietudes en un foro tan importante tendría que estar escribiendo varios días para explicar todos los problemas que tenemos para el desarrollo de nuestra actividad pero creo que lo más importante es la poca consideración que desde el gobierno tiene nuestro trabajo por eso quiero o más bien exijo que nuestro esfuerzo por una ganadería sostenible y respetuoso con el medio ambiente tenga el reconocimiento que se merece pues la industria cada día nos arrincona un poco más con sus grandes lobis.

Quiero también que se reconozca nuestra labor protegiendo la biodiversidad y nuestro esfuerzo en mantener la soberanía alimentaria también en proteger nuestra cultura ganadera que se remonta a los albores de la civilización.

Con nuestro esfuerzo mantenemos la población en el medio rural creando empleo y impidiendo que las zonas rurales queden deshabitadas somos imprescindibles en evitar incendios limpiando los montes y dehesas con nuestros rebaños con la trashumancia aseguramos que las cañadas un tesoro de todos no pase a manos privadas y mil cosas más que están en la misma línea los colectivos de esta forma de vida pedimos justicia o mejor socorro en los últimos veinte años en la península ibérica han desaparecido el ochenta por ciento de esta forma de vida en unos cuantos años si no se nos protege debidamente nuestra forma de vida será irrecuperable SOCORRO
46. John Turner, The Pasture-Fed Livestock Association c.i.c., United Kingdom

We would like to thank the UN Committee on World Food Security for the opportunity to comment on this report.

There are two areas where we would welcome further analysis in the final report:

The first is to do with Land Use Change, which is often associated with the production of animal feed. The report notes (albeit briefly) the environmental impact of this but it is also important to reflect the social impacts that land use change can have, particularly when indigenous forms of subsistence farming are displaced by the sort of commodity crops that typically supply the livestock feed markets. The resulting model is not only less resilient in terms of the sort of climatic shocks we need to plan for, but it also greatly increases the risks posed by economic shocks.

The second is to do with water consumption - so often cited as a major issue with livestock production. We would welcome a greater distinction between blue, green and grey water in this respect. The report (3.3.3) does correctly note the potential problems associated with grey water from intensive livestock production. However, it is also important to note that pasture-based, extensive livestock production is predominantly associated with green water use and as such presents minimal conflict with domestic water supplies. A more accurate way to see the use of green water in the context of extensive livestock production is not as one of consumption, but as part of a closed cycle, whereby excreted water (urine) is used by plants as a source of nutrition and both toxins and pollutants are rapidly broken down by crops and in the soil by microflora.

Below is a slightly more detailed version of our response.

With good wishes,

John Turner
Pasture-Fed Livestock Association (Certification)

The Pasture-Fed Livestock Association (PFLA) would like to thank the UN Committee on World Food Security for the opportunity to comment on this draft report.

The PFLA is a UK-based organisation that promotes ruminant livestock production based entirely upon grazed pasture and conserved forage. The PFLA offers a Certification scheme for farmers and retailers wishing to distinguish produce derived from pasture-based livestock production systems.

A significant consideration that underpins our work is that of sustainable land use and food production and to that end we recognise the detrimental impact that the cultivation of arable crops for livestock can have. The inefficient conversion between feed in and produce out represents an equally inefficient use of land suitable for arable crops. Furthermore, animal feed crops tend to take the form of large-scale monocultures, which in developing countries represent an important land use change that can disrupt indigenous patterns of farming and natural ecosystems, including rainforest.

We base our work on solid scientific evidence wherever that is available, but it is clear that there are significant gaps in terms of the nutritional benefits of produce derived from livestock raised on pasture-based systems, the environmental impacts and also the relationship between animal welfare and the method of production. We are in the process of compiling an economic study of production costs from a range of certified farms, using the UK’s AHDB “Stocktake” facility to benchmark these results and to compare them with mainstream production. Unfortunately this work is not sufficiently advanced to contribute the results to this report, but even at this early stage, the differences are striking, particularly in terms of the resilience of the economic model.
There are two areas of the report where we would welcome further analysis if the opportunity arises between the draft stage and publication; these are to do with land use change and the issue of water use.

Land Use Change

The impact of land use change is mentioned just once in the report (P.8, line 48) and that is within the context of greenhouse gas emissions. However, we believe the true impact of land use change is in fact significantly more far reaching and should be given a higher profile within the report:

The loss or change of habitat can have a dramatic impact on biodiversity that can, in turn, impact pollination, pest and disease vectors, soil conservation and water retention amongst many other factors.

Land use change also often displaces indigenous forms of farming and food production and marks a shift from a subsistence model of food supply to one based upon economic trade. This has an impact upon the resilience of food production, particularly when considered in the context of climatic change, where more extreme and unpredictable weather patterns are confidently predicted.

The task of quantifying or assigning a monetary value to land use change is almost impossible, but we feel that both its environmental and social impacts must be properly reflected within the report.

Impacts upon water supplies

Section 3.3.3 of the report addresses the important issue of water. Although the report describes the problems potentially caused by pollution, the PFLA would suggest that it is useful to make a more implicit distinction where the water footprint is broken out into three parts:

- The green water footprint (consumption of rain water);
- The blue water footprint (consumption of surface and groundwater); and
- The grey water footprint (pollution of surface and groundwater)

The consumption of water associated with livestock production is commonly expressed in volumes per weight of produce (e.g. litres per Kg meat). However, there is a significant difference in impact, depending upon the category of water that is affected: In terms of competition for resources, human consumption is often associated with blue water, but extensive livestock production is predominantly associated with green water. Furthermore, in terms of pollution, intensive production often produces grey water which, if it isn’t properly treated at source, can cause significant environmental problems and can contaminate both green and blue water reserves (as suggested within this section of the report). Extensive livestock utilises green water, and because urine is returned directly to grazing pastures at relatively low rates (compared with applications of manure from intensive units), any toxins or pollutants are rapidly broken down by microflora. As such, the majority of water consumption in extensive, pasture-based livestock systems in fact constitutes a closed loop, with minimal environmental impact. It should also be noted that urine is an important source of plant nutrition and therefore the impact of livestock cycling water in this way should not be measured entirely in negative terms.
47. Mia MacDonald, Global Forest Coalition & Brighter Green, United States of America

In this document, the Global Forest Coalition and Brighter Green offer their preliminary response to the Zero Draft of the HLPE Report for both the expository sections of the paper (chapters 1-3) and the sections on pathways and recommendations (chapters 4-5). We have organized these comments by theme. In the footnotes, we include references to research and case examples and analysis we encourage the committee consult. We have sought to respond to the framing questions the Drafting Committee shared to guide this input.

1. Overall, the report is well written and seemingly comprehensive, i.e., it contains a range of information and analysis, and encompasses a number of relevant topics. However, it is constructed in such a way that the main actors driving change in the livestock sector the report seeks to document to respond to – namely agribusiness practices, government policies, and meat and feed industry desires for new markets and profits – are almost invisible. This is evident in the framing of the analysis, its development (the “facts”), and in the conclusions and recommendations.

Unacknowledged drivers

2. The report credits demand side factors like rising incomes and urbanization virtually exclusively for the growth in production and consumption of livestock products. This leads the authors to view industrial livestock and its continued expansion as necessary and indeed, inevitable. For example, on p. 12, the report states [emphasis added in bold type] that “Debates continue on the question of biophysical limits in these critical areas and the extent, but not the direction of change required.” That is simply untrue.

Similarly, on p. 17 the report states: “As a recent paper by the Global Agenda for Sustainable Livestock notes, there is a much needed unifying, evidence-based ‘all-in-one’ narrative on the role of livestock in sustainable development....”

But it is fair to ask: is this really true? In our experience, there are multiple narratives on the livestock sector, all highly dependent on where various actors sit and their experiences, values, and the realities of the power they exercise.

3. The report (e.g., p. 17) also repeats the analysis and worldview contained in the 1999 Delgado paper on the “livestock revolution,” even though current research and realities challenge that research and the inevitability of its projections. If this study is included in the next draft of the HLPE report, it should not be accorded the prominence it has now as a key framing device for the analysis. This summary statement (p. 63) also establishes the bias of the report toward the “inevitability” of industrialization, intensification, and commodification, without a full accounting of its multiple costs (detailed further below): “There is a range of possible responses to reduce pressure over land for agriculture (Herrero et al., 2010). Intensification and the continued shift from ruminants to monogastrics (especially poultry) are continuously improving land-use efficiency, helping to reduce the land area used per unit of output.

4. Supply side factors are woefully neglected as agents of change and forces shaping the direction of the change the report documents. These include: the replication of Western style industrial production of feed and animals by agribusinesses looking for new markets outside previously industrialized
regions; the massive marketing of animal-based foods, including fast food, and the enormous advertising budgets of large food corporations; the often close relationships between agribusiness (i.e., large producers of livestock and feed) and governments; the beneficial policies that speed industrialization of animal agriculture, including subsidies, tax incentives, limited or non-existent regulatory regimes, trade arrangements, public procurement, and few or no mechanisms to cost the enormous externalities of industrial livestock and feed production (enumerated below), or to recover these costs.

In neglecting these powerful drivers of change, the report attempts to make the presence of the corporate sector more acceptable, innocent and even necessary in the global effort to achieve food security.

Definitions, smallholders, pastoralists, and the question of coexistence

5. The definitions of the four categories of livestock production the report presents (p. 32) are limited and static. It would be more useful to the overall analysis if these descriptions were more detailed and more accurate, i.e. if they described more accurately the various aspects of industrial livestock operations – the scale, the confinement systems, the mechanization, the conditions for the animals and workers, and the feed, water, and infrastructure requirements.

6. The report also suggests an essential relationship of mutuality between smallholder production and the industrial livestock and feed sectors, e.g. on p. 29 when it states: “It is widely recognized that agriculture is currently marked by the coexistence between, at one end of the range, the highly industrialized farm systems, with strong connections to the markets and heavily dependent on external inputs and, at the other end, diversified multipurpose production systems, managed by smallholders according to a combination of market and non-market needs and pressures....”

But in reality, such coexistence – defined here as both possible and indeed, inevitable – is virtually impossible. In reality, the private sector exercises its power to eliminate competition from peasants and Indigenous Peoples. This is evident in land tenure, market access, the use and control of seeds, price and marketing, and other contexts. The dominant relationship is one of “take no prisoners”, and therefore the diametric opposite of coexistence.

On p. 13 the report states: “The needed increase in agricultural production (including livestock) offers a huge opportunity to lift smallholders out of poverty.” But this, too, flies in the face of experience, which has shown that smallholders are almost always crowded out of markets by larger, industrialized operations competing on scale, price, and their power to amass large landholdings; resources like water and forests; and well as political favor and protections.

7. Pastoralism and smallholder agriculture are rendered in a paternalistic way throughout the report. They are accorded “social” value, but are largely confined to the social sector, at odds with realities throughout the world of their contributions to the economic, environmental, and development sectors. E.g., on p. 63 the report states: “A pathway emphasizing the “social” dimension would give priority to production and consumption systems that engage with stakeholders and involve participatory approaches, and would give priority to meeting food consumption from local – and often small-scale – production, and to food sovereignty.”

Environmental and social realities

8. The costs of the industrialized livestock and feed sectors are heavily downplayed in favor of their purported economic, environmental, and social “efficiencies.” Specifically, while the report discusses crucial issues like deforestation and water use and pollution by industrial livestock and feed production, it does not present them in ways commensurate with their scale and their massive impacts
on the natural environment and communities in both rural and urban areas. This list of un-costed externalities includes widespread deforestation for grazing and feed production – in many regions of the world and not just in the Brazilian Amazon (a featured example in the report) – massive use and appropriation of water sources for feed and livestock facilities; widespread water pollution; and the loss of biodiversity as a result of clearing forests, grasslands, and other ecosystems to make way for livestock or feed production.

The report also does not examine with the requisite level of analysis the impacts of one of its own conclusions (p.25), namely that: “It is interesting to note that, more generally, the feasibility analysis indicates that the additional costs of humane and organic livestock rearing systems, in terms of feeding efficiency and demand for additional area, seem to be relatively low.”

9. A related point is that the magnitude of the violence of the industrial livestock and feed sectors toward non-human animals and the environment is not addressed in the report specifically in terms of, e.g., transforming landscapes and ecosystems into monocultures of crops or animals; and the dire and unacceptably cruel breeding and living conditions for animals in industrial livestock operations. A growing body of research and documentation illuminates these realities.73 We also note that the terms “factory farm” and “feedlots” are not mentioned in the report at all, despite their accuracy and increasingly wide use.

10. The climate impacts and GHG emissions of industrial livestock and feed production – and of the growth in consumption of animal-based foods along the trajectory set by the industrialized world – is also underplayed. A recent study in Nature Climate Change concluded that food production would go up 80% if meat and dairy consumption continues to rise at its current rate.74 The report needs to address this research and other recent studies not produced by the livestock or feed industries, or researchers they support.

11. Another area that receives short shrift is the often-violent displacement of communities and the appropriation of their lands for the industrial livestock and feed industries, and the resultant loss of sustainable livelihoods. This process often entail gross violations of human rights, bodily injury, illness, increased poverty and loss of assets and ways of life, and even death, and has been documented in numerous countries. Such examples should be included in the report.

Two recent case studies on the situation in Paraguay published by the Global Forest Coalition and Brighter Green are relevant here.75 They document the many ways in which unsustainable livestock

73http://www.farmsanctuary.org/learn/factory-farming/
http://www.hsi.org/issues/
http://www.mercyforanimals.org/the-problem

74GHGs and food systems, specifically livestock and feed production; Nature Climate Change study Bajzelj, Bojana, et al., “Importance of food-demand management for climate mitigation”, 31 August 2014
http://www.nature.com/nclimate/journal/v4/n10/full/nclimate2353.html


production—including cultivation of fodder and feed crops like soy—is a major factor in ongoing degradation or destruction of biodiversity, the alienation of communities from their land, water, and livelihoods, and other negative environmental, economic, social and cultural impacts.

Recent research by Brighter Green\(^7^6\) also includes documentation of cases of “debt bondage” and slave-like conditions for workers in large agricultural operations in Brazil. In the state of Mato Grosso, e.g., workers maintained more than 100,000 cattle and 4,000 ha (9,000 ac) of soybeans. They lived in abysmal conditions with inadequate housing, sanitation, and water, and worked 16 hours a day, seven days a week. This situation is not unique.\(^7^7\)

Working conditions

12. The report notes (p. 46) that: “Slaughterhouse and packing plant workers are also exposed to **high levels of occupational risk and suffer elevated rates of injury and even mental disorders** (Hutz et al., 2013).” However, this point is not elaborated. The report should give more prominent attention to the low wages, high rates of injury, monotony and intimidation, and health risks from pesticides and other toxic pollutants that are experienced by workers in processing and packing facilities (see e.g. this report\(^7^8\)); those employed by mechanized animal production facilities or in large-scale cultivation of feed crops; as well as the low wages, loss of autonomy and financial strains experienced by many “contract” farmers for large agribusinesses.

Data issues

13. The report also contains factual misstatements and outdated data that skew its analysis. On p. 26, it states: “The world’s livestock headcount is estimated to 33 billion – among which, 19 billion chickens, 1.5 billion cattle, 1.7 billion sheep and goats, and 1 billion pigs.\(^1^3\)” But this undercounts the number of animals used in global food production each year by a factor of at least half. The actual number is closer to 70 billion. This is the result of standard practices in industrial food production: namely chickens raised for meat take approximately six weeks to produce, and pigs about six months. So, in one year, nine cycles of chickens can be produced, and at least two of pigs. Therefore, a one-day estimate of the global livestock population obscures its immensity and the scale of the sector globally. And, despite its focus on the “dynamism” of the sector, the report doesn’t mention the potential growth in the global livestock population, especially in the context of the analysis by e.g. Delgado. By 2050, the number of “livestock” used by the global food industry each year could be as high as 120 billion.\(^7^9\)

Similarly, on p. 26, the report uses data from 2001-2003 to show “grazing systems supply 9 per cent of the world’s meat and 12 per cent of milk; mixed crop–livestock systems contribute 46 per cent of meat, 88 per cent of milk, and 50 per cent of cereals; while intensive systems provide 45 per cent of


\(^7^7\) [www.brightergreen.org/brazil](http://www.brightergreen.org/brazil)

\(^7^8\) [http://www.greenpeace.org/usa/research/eating-up-the-amazon/](http://www.greenpeace.org/usa/research/eating-up-the-amazon/)


meat (Steinfeld et al., 2006);” More recent data should be used, since such data is likely to show significant changes, i.e., a larger share of industrial production.

14. The report also significantly shortens the timeframe of the expansion and industrialization of the livestock sector making it seem like a more recent phenomenon. On p. 34 it states that: “Over the last 20 years, livestock production has responded to increasing demand primarily through a shift from extensive, small-scale, subsistence, mixed crop and livestock production systems towards more intensive, large-scale, geographically-concentrated, commercially oriented, specialized production units (Robinson et al., 2011).” But this is highly inaccurate and makes the current growth of industrial livestock seem like a recent phenomenon – and almost solely a phenomenon of “increasing demand.” In reality, it has been underway much longer: since the end of World War II, first occurring in industrialized countries and then spreading to other regions through industry and government action.

Resource footprint

15. Much more attention should be given to the economic, environmental and social consequences, at global, national and community levels, of the enormous resource footprint of the livestock sector. The report downplays the effects of the enormous feed requirements of the global livestock sector (for corn, soybeans, cereals and other biological matter) and the inherent inefficiencies of livestock production – despite industry claims to the contrary. The report does include important facts on the scale of the sector’s resource use (p. 27): Livestock is the world’s largest user of land resources... The sector uses 3.4 billion hectares for grazing and one-third of global arable land to grow feed crops, accounting for more than 40 percent of world cereal production. Almost one-third of total agricultural water is used by the livestock sector directly (FAO, 2013).

The consequences of this disproportionate resource use are not discussed in great detail, including for urgent global challenges including: 1) global, national and more localized food security and food availability; 2) the likelihood of meeting nutritional needs and eradicating hunger (in line with the SDGs); and 3) the nature and resilience of agricultural systems, and related livelihoods. Moreover, this statement also is not supported sufficiently by data or concrete examples, and contains a highly debateable assertion (p. 34): “As production systems intensify and become more efficient, less feed is needed to produce a given unit of livestock product, with positive effects on the environment.”

Food waste and GMOs

16. In its discussion of food waste, the report hedges and provides an incomplete analysis. It states (p. 41) that: “...it is difficult to quantify food losses and waste. Nevertheless, a study reported in 2011 shows that for meat/meat products and milk the percentage of losses and waste, at about 20 percent, is lower than for other agricultural products...” However, overconsumption of proteins and livestock products in general should be seen as a form of food waste. Moreover, food waste has become a key priority within the SDGs, as well as within the work plan of UNEP, so there is a global commitment to work on this issue. It appears biased to only mention in relation to food waste that livestock products are associated with less waste, despite the enormous resource requirements of producing, transporting, storing, consuming and disposing of them. Lifecycle analysis studies should be included here.

17. The discussion on GMOs is unbalanced in that it makes positive claims for GMOs without any counter-veiling arguments and research about public perceptions, safety, risk, the use of the precautionary principle, and broader ecological, social, and health impacts being included (pp. 47-48). The report’s section on public attitudes towards GMOs suggests a rather blinkered view of the forces that determine public perceptions of technology, without strong references to research, or to the
public’s ability to make sound determinations of risk, safety and appropriate use. In using of the example of Zambia refusing shipments of GMO maize, the report makes no mention of the availability of non-GMO maize in Africa as an alternative. Nor does it provide context for this example with a discussion of the problems posted by the “dumping” of agricultural commodities in local markets, and the short- and long-term negative impacts of such policies on domestic food security and livelihoods, as well as the agricultural economy.

This section also does not address the significant impacts of the large-scale planting of GMO crops and the agro-toxins they require on communities and the environment. These include: contamination of nearby non-GMO crops; challenges to the maintenance of agro-ecological farming by the loss of land – through poor information, bad loans, or intimidation; pollution of local and national water supplies; a range of serious morbidities as well as mortalities, including skin rashes, respiratory infections, and some cancers. Such realities have been documented in Paraguay, and an increasing number of other countries by civil society organizations and academic and public health researchers and should be acknowledged in the report.

Nutrition, public health, and sustainable diets

18. While the report acknowledges that there are public and individual health impacts of diets high in some animal-based foods, this discussion is rather limited. The negative effects of the global spread of Western-style diets are gaining greater attention within the international public health community should be reflected. The report also repeats a set of contentions about the necessity of animal-based foods in diets and the purported positive impacts of such consumption (like growing taller or improving cognitive development) that are increasingly challenged by current research and discourse.

By not including this perspective, the report risks being anachronistic and “static” in its elaboration of this other crucial aspects. It also risks being highly misleading in its representation of the lack of existing research, e.g., when the report states (p. 28): “On the other hand, diets rich in livestock products, in particular red meats, are implicated in rising health concerns in some countries, although the scientific evidence and nutritional guidance has often changed through time and can be confusing to consumers.” It also contends (p. 28) that “…studies in high-income countries generally support a link between higher ASF consumption, overnutrition and chronic disease, the exact role of specific foods is highly contested and prone to revision. “How much research can the committee ignore?

Just one example: the WHO announcement this month that processed red meats are definitively linked to certain cancers.81 The report also includes extremely broad and questionable statements without scientific support, such as these (p. 17): “Indeed, ASFs are probably the world’s most important source of nutrient-rich foods in diets and studies show the health benefits of providing ASFs to undernourished populations (Gibson, 2011). Milk consumption is especially associated with increased height, and meat consumption with increased cognitive development.” Furthermore, there is growing awareness among researchers that increased consumption of animal-based foods cannot provide the


answer to the urgency of addressing simultaneously the “double burden” of malnutrition, i.e., undernutrition and soaring rates of NCDs. The report is silent in this respect.

19. The report mentions, but then discounts, the potential positive health and environmental benefits of dietary shifts away from livestock products, despite a growing body of literature on this very issue (see, e.g., this report82). Why? See e.g., p. 17: “Alternative diets offer substantial health benefits and if widely adopted could reduce global GHG emissions, land clearing and resultant species extinction while helping prevent diet related health concerns (Tilman and Clark, 2014).”

20. The case studies are not wholly relevant to the analysis presented in the report. In addition many are partial or static analysis that seem to document “win-win” situations, without delving more deeply into realities on the ground or opposing perspectives and evidence. For example, the case study on Brazil ignores continued deforestation (legal and illegal) in the Amazon as well as in the Cerrado (the Brazilian savannah).

The case studies also neglect the very real and urgent disruptions being caused by the growth of industrial feed and livestock production for land rights and use, ecosystems and biodiversity, and natural resources for current and future generations. Please see this documentation, among others, for more realistic, relevant case examples.83 84

Trade and value chains

21. The report states (p. 45) that agriculture plays a major role as a provider of employment and acknowledges the unsatisfactory working conditions of wagemakers, migrants and child workers, but does not include any reference to the most problematic issues around global value chains. These were detailed by UNCTAD’s 2013 World Investment Report: Global Value Chains (GVCs): Investment and Trade for Development.85 Key, and highly relevant, conclusions from the UNCTAD report include the following:


83 http://brightergreen.org/globalization/

www.brightergreen.org/brazil

www.brightergreen.org/india

www.brightergreen.org/china

www.brightergreen.org/ethiopia

84 http://brightergreen.org/dairy


1) Patterns of value added trade in GVCs are shaped to a significant effect by the investment decisions of TNCs.

2) TNC-coordinated GVCs account for some 80 percent of global trade.

3) This fragmentation of production, the management of global factories, and the end of the need to perform manufacturing stages close to one another are all key components of today’s global value chains (GVCs). This phenomenon began in the 1980s but has now become the definitive system of world trade. The world economy is now defined by GVCs. The Business Guide to the World Trading System, published by the International Trade Centre (ITC) and the Commonwealth Secretariat in 1999, says “virtually all manufactured products available in markets today are produced in more than one country”86

However, not everyone earns the same benefits across the chain. As the report points out, GVCs can perpetuate cheap wages, precarious work and trap developing countries in the low value end of the chain, never rising above the unskilled labor-intensive tasks. If the entrenchment of low wages, precarious work and being trapped in the low value end of the chain is widespread, then how does the HLPE committee hope to address overhauling the GVC now in place in industrial agribusiness and other global trade, which as the UNCTAD reveals, 80 percent of which is controlled by TNCs?

22. Furthermore, with regard to the section of the report on “Trade, Policies and Markets (to be further developed and revised in light of any further progress in WTO negotiations)”, one of the stated goals of the WTO is “to improve the welfare of the peoples of the member countries.” Promises have been made within the WTO of bringing development to developing and Least Developed Countries (LDCs), by eliminating trade-distorting subsidies of developed countries, ending dumping or the practice of flooding markets with goods below their cost of production, and providing meaningful special and differential treatment. One of these was the Agreement on Agriculture (AoA). It was developed to bring “discipline” to the agriculture sector and, particularly, an end to trade-distorting subsidies to agriculture of the U.S. and the EU.

The WTO Hong Kong Declaration stated that 2013 would be the deadline for ending export subsidies and that there would be duty free quota free market access for cotton farmers. That deadline has passed with no real consequences. Furthermore, the promise of disciplining the massive subsidies of the U.S. and EU was never real; the true goal of the AoA was to gain access to the agricultural markets of developing countries while disciplining their governments and limiting their policy space.87

The U.S. and the EU, through various loopholes, are able to circumvent their 5 percent limit under the AoA and provide billions of dollars in domestic supports to their agricultural producers – the US with $130 billion in 2010 and the EU with 79 billion Euros in 2009.88 How does the FAO propose to implement all the agricultural policies laid out in the report if they run counter to WTO trade rules?


87Malig, ML. Transnational Institute and Serikat Petani Indonesia

Big Corporations, the Bali Package and Beyond: Deepening TNCs gains from the WTO.

http://www.tni.org/briefing/big-corporations-bali-package-and-beyond

88Ibid.
For instance, India and the G-33 grouping of developing countries, which includes Indonesia and the Philippines, had originally demanded an amendment of the AoA so they could provide domestic support to their poor farmers for food security and public stockholding purposes without breaching the limits established by the Agreement. The U.S., EU and other developed countries had found this issue too big for the Bali round of negotiations and proposed instead a “peace clause” i.e., a temporary measure that allows India and other countries to breach the 10 percent limit set for developing countries without the risk of being sued by other WTO Member countries under the WTO Dispute Settlement Mechanism. However, the peace clause states that it only applies “...in pursuance of public stockholding programmes for food security purposes existing as of the date of this Decision,” which, as many analysts have pointed out, is highly problematic.

An important question is whether the decision introduces a “standstill” clause for any expansion of these public programs because the decision applies to programs “existing as of the date of this Decision.” If so, this would have an impact on developing countries who currently do not have such programs, as well as for the expansion of India’s program.”

The FAO does not have the same power of the WTO, which is able to legally sanction sovereign nations for violating trade rules, such as the rules under the AoA. So, how will the policy recommendations in the report be implemented if many, if not most of them, can be seen as clashing with WTO rules? The report needs to address this crucial inconsistency. This leads on to our next and final points on the report’s recommendations (below).

Recommendations

23. As a whole, the recommendations in the report (pp. 62-67) are vague and lack actors and agency. Who is to take these measures? To what end? What will be the effects of such actions? How would they be implemented? Whom and what will they benefit? The recommendations also suggest a “business as usual” approach, even though the report states that business as usual is no longer sufficient given the challenges the livestock sector presents for food security and nutrition now and in coming decades. Here, we offer alternative recommendations and also note where our perspectives align with the committee’s existing recommendations.

Redirection should be undertaken as an urgent priority of existing and perverse incentives, including subsidies, tax breaks and legal incentives, and investment flows in general, away from industrial agriculture, large-scale cattle ranching, and intensive livestock operations and feed monocultures.

(See more on this report: footnote 13.)

89 Ibid


91 Malig, ML. Transnational Institute and Serikat Petani Indonesia

Big Corporations, the Bali Package and Beyond: Deepening TNCs gains from the WTO.

http://www.tni.org/briefing/big-corporations-bali-package-and-beyond
toward support for more sustainable alternatives (please also see this analysis we have co-produced92). The overwhelming majority of Organization for Economic Cooperation and Development (OECD) subsidies to the livestock sector continue to support production systems highly dependent upon imported feedstocks like soy, as well as being highly questionable from a climate, environmental, social, health and animal welfare point of view. (Direct subsidies for animal products and feed in industrialized countries (OECD members) in billion US$= Beef and Veal: $18 Milk: $15.3 Pigmeat: $7.3 Poultry: $6.5 Soybeans: $2.3 Eggs: $1.5 Sheep: $1.1.) Non-OECD countries are also increasingly subsidizing intensive livestock systems.

China, for example, which has become the main destination of Latin American soy, provides more than US$500 million in subsidies to promote “scale” livestock and poultry farms, on top of an estimated US$564 million in “award” payments for major hog-producing counties. The Brazilian Development Bank provides generous soft loans to cattle and soy producers, The total amount of credit provided through the Brazilian government’s 2010 Agriculture and Livestock Plan was US$61 billion, of which only US$8.5 billion was directed towards small family farms, which produce an estimated 60% of Brazil’s food.

Subsidies for industrial livestock should be reapportioned to environmentally and socially sustainable, smaller-scale agricultural systems that conserve and enhance native grasslands, wetlands and open forests. The reform of incentive schemes should take into account all economic, social, cultural, environmental, gender and equity aspects. For that reason, it is essential to ensure the full involvement of indigenous peoples, local communities and other rights-holder groups like women, small farmers, pastoralists, fisherfolks and trade unions in the design and implementation of incentive reform.

Governments should also take the following additional actions:

- Adopting fiscal reform that supports sustainable forms and levels of livestock and feed production and consumption, such as a redirection of the tax burden from sustainable to less sustainable products and production methods.
- Developing and implementing strict legislation prohibiting livestock and feed production practices that involve biodiversity loss, high greenhouse gas emissions, environmental pollution, weak labor standards, land grabbing, health risks or maltreatment of animals
- Incentivizing consumer campaigns on the benefits of dietary shifts away from high meat consumption and toward more diverse, plant-based foods.

24. We strongly object to the assertion on p. 83 that: “...to resort to a reliance on local production, and shorter food supply chains, often encapsulated in the notion of “food sovereignty”. But this can be a costly strategy and does not eliminate risk. Trade-offs need, inevitably, to be made.” We ask: what are the costs and trade-offs being referred to and who is it who will decide how they are to be made. We also question the statement made as fact that food sovereignty is costly, and requires trade-offs.

25. We challenge the promotion and necessity of public-private partnerships (p. 83) and the worldview that the industrial model is the way to sustainability in all aspects: consumption, production, trade, technology, and finance, among others, despite strong evidence to the contrary. This ties in to our point made above that coexistence is not possible.

26. The recommendations on worker safety and animal welfare are weak since they both refer to “minimum standards” and are unclear on who will set and enforce any standards. Similarly, using the “polluter pays” principle to reduce environmental externalities is a good one in theory, but how will such a directive have force?

27. We can support some of the recommendations on p. 84, including: linking pastoralists and traditional communities with land access and tenure; using public procurement to provide more nutritious, sustainable meals to children, the elderly and marginalized groups; using taxes and subsidies to boost regulations to influence healthy food choices; implement projects on healthy diets; improve rural nutrition and availability and adoption of a diversified diet. But we would request more details on how such recommendations would become public policies and how they would be implemented, monitored and their impacts assessed.

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Global Forest Coalition (www.globalforestcoalition.org)

The Global Forest Coalition (GFC) is an international coalition of NGOs and Indigenous Peoples’ Organizations defending social justice and the rights of forest peoples in forest policies.

Brighter Green (www.brightergreen.org)

Brighter Green is a public policy action tank that works to raise awareness of and encourage policy action on issues that span the environment, animals, and sustainability. Based in New York, Brighter Green works in the U.S. and internationally with a focus on the countries of the global South and a strong commitment to ensuring and expanding equity and rights.

48. Civil Society Mechanism

Preliminary CSM Comments on the HLPE Zero Draft Report on “Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock” – October 2015

This document conveys the preliminary comments of the Civil Society Mechanism (CSM) on the Zero Draft of the HLPE Report. Given the short deadline for comments, the language restriction (text only in English) and the time needed to adequately consult within social movements, including alliances of nomadic peoples, peasants, women in agriculture, indigenous peoples, landless, migrants, agriculture workers and those representing the workers in the meat processing chain, this document features concise comments, which will be followed by more detailed feedback in November.

I. Overarching comments

While acknowledging the significant work for the preparation of the Zero Draft, the CSM is deeply troubled by the significant bias of the current draft report and the lack of fair and balanced representation of the full spectrum of productive systems and their economic, social, ecological and political implications. On the contrary, the report should expose an independent, comprehensive, balanced and inclusive assessment of the situation. This is particularly alarming, as a biased analysis will obviously lead to equally biased recommendations, prejudicing the subsequent normative processes within the CFS. The CSM is particularly concerned by the narrative exposed by the current version and strongly believes that the next draft would require a significant re-orientation if it is to fulfil
the mandate of the HLPE. We articulate the CSM’s overarching concerns and comments below as well as include constructive proposals on how to re-articulate the next draft in the closing section of this document:

1. Lack of contextualization in the CFS mandate and human rights framework: Despite the title, the report fails to adequately locate sustainable agriculture, including livestock, within the context of the mandate of the CFS. First, the report appears to be much more driven by the conventional development of the sector rather than by the desire to explore how such development can become a critical pillar to address Food Security and Nutrition (FSN). Secondly, when referred to, FSN is addressed as a need to be met by the market rather than as a fundamental right. Indeed, there is no mention, in the entire document, of the Right to Adequate Food and Nutrition, nor other human rights, despite these being one of the central pillars of the Global Strategic Framework (GSF) of the CFS. Thirdly, smallholders, another central pillar of the CFS and its GSF, are portrayed as a marginal and unproductive category;

2. Mischaracterization of Food Sovereignty and Agroecology: The lack of reference to rights and the non-centrality of smallholders contributes to the profound mischaracterization of Food Sovereignty, which is merely introduced as an intellectual debate in a box. Similarly, Agroecology (rarely referred to explicitly in the report) seems to be solely considered as one among many techniques under the umbrella of sustainable agriculture. On the contrary, both these conceptualizations (Food Sovereignty and Agroecology) embody a political vision of productive systems and socio-economic relations that is profoundly alternative and antithetic to the hegemonic and homogenizing paradigm of the global food system based on industrial agriculture and the corporatized food industry;

3. False narrative on the grand challenge of feeding the planet and focus on Yield Gaps: The report reiterates the grand narrative of feeding a growing planet and constructs the myth of the pressing demand for food that urgently requires a “productivity” revolution. This narrative is false and misleading. The reality is that there is no shortage of food, nor is this the key problem contributing to food security. In addition, global food loss and waste account for approximately one third of the edible parts of food produced for human consumption and derive largely from the agro-industrial model of production. Family farmers, especially small-scale farmers and food producers, feed 70 percent of the world population and are the main investors in agriculture. The challenge of feeding a growing planet should therefore be based on the centrality of smallholders, as recognized by the GSF, rather than on their mischaracterization as a marginal and unproductive category. Furthermore, despite referencing three typologies of countries, three different agricultural development trajectories and four livestock “systems”, these categories (particularly of the four livestock systems are hardly analysed in the context of FSN and sustainability. The overarching emphasis of the framework is focused on “yield gaps” to meet FAO’s projections of rising meat demand by 2050;

4. Aggregate view of the impacts of the livestock sector hides the fundamental ecological footprint of different production models, with no reference to agroecology: While introducing some classifications, the conceptual framework of the report addresses the livestock sector as one entity and describes its aggregated impact in terms of unsustainable use of natural resources, health risks and social concerns. Again, this is a misconstrued narrative. These negative consequences are mainly the direct implications of the industrial-intensive mode of production and relate only marginally to the pastoralist, agro-pastoralist and smallholder mixed systems. Framing the sector by looking at its aggregate impact does not expose the diametrically opposed trends within the sector and their respective implications. Indeed, a large number of peasants, livestock keepers and pastoralists, while
pushed by global and national economic policies to intensify their production (rearing cross-breed and high-yielding breeds in place of local indigenous breeds, feed concentrates, stall-feeding animals in lieu of grazing, etc.), are today making concerted efforts to de-intensify and revert to agro-ecological livestock rearing practices. This means reverting to a diversity of indigenous ecologically-adapted animal breeds, reverting from ‘specialised’ single commodity production systems to diversified multi-functional livestock rearing systems (manure, milk, meat, transportation, etc.), changing feeding regimes from intensive concentrate feeds to local fodder and crop-residues, and selling produce to local rather than distant markets. This is a strategy to respond to climate change (local indigenous breeds are more resilient and adapted, require reduced quantities of fodder and water and care, are more resistant to diseases), to adapt to scarce natural resources, and to be economically resilient and to safeguard against unreliable global trade policies and regimes, that distort prices in national markets. This people’s reality completely contradicts and challenges the modelling projections of intensification and moving-up the value chain as the most effective way to combat climate change, address sustainability and meet food security needs;

5. The pretence of complementarity and cohabitation of production models and the silence on the predatory nature of the agro-industrial system: When introducing classifications of different production models within agriculture and livestock, the report portrays them as complementary to each other. The reality is fundamentally different. The benign characterization of the various production models does not expose the predatory nature of the agro-industrial system and the emerging evidence that, in the name of the grand narrative of feeding the planet, “intensification and specialization” are triggering the exit and exodus of millions of peasants, pastoralists and indigenous people from rearing livestock, the disappearance of literally hundreds of breeds (one per month from 2000-2006 as reported by FAO ), and creating enabling legal conditions for the further grabbing of land and water resources from their legitimate communities.

There is no mention in the report of the often-violent displacement of communities and appropriation of their lands for the industrial livestock and feed industries, and the resultant loss of more sustainable livelihoods. This process often entails gross violations of human rights, bodily injury, illness, and even death, in addition to increased poverty and loss of assets and ways of life. This has been documented in numerous countries. The continued expansion of the agro-industrial complex is therefore undermining smallholders and their capacity to sustain their productive, territorial, social and political functions. It is itself generating the problem it claims to address.

Furthermore, the narrative has completely failed to document the rise of oligopolies and extreme market concentration of inputs and the rapid, continued and unchallenged global consolidation of the industrial livestock complex (in meat, dairy and feed). This reality continues to create enormous buyer power for both meat processors and retailers that drive much of the externalities referenced in the report, such as environmental pollution, biodiversity loss, global health problems, deteriorating worker conditions, animal welfare, among others. In fact, “bargaining power in price formation” is mentioned for the first and only time on page 81 in the conclusion;

6. Productivist approach and commodification of life: By promoting a “productivist” approach to agriculture and livestock, the report further promotes the aggressive commodification of life – human body, land, water, seeds and genetic resources, among others-- that characterizes the agro-industrial model. We reject this notion and reaffirm our holistic understanding of our relationship with our ecology and the cultural, social and political dimensions of productionand local markets. In this context, food is the expression of values, cultures, social relations and people’s self-determination, and our food systems are the expression of our cultural identities and human dignity, our ownership over our life course, and our sovereignty.
The ‘productivist’ approach of the current draft also creates a blind spot to other roles and functions of livestock in non-industrial farming, including providing identity, social safety nets, status, insurance, and companionship, among others. These functions are not necessarily a ‘by-product’ of rearing animals for food. Often, the opposite is true, like when livestock provides draught power and means of transport. Hundreds of millions of people depend on livestock to plough and harvest their land, transport food and water and bring their products to markets. In this context, strengthening animal health and welfare – for example by better access to veterinary services – is mutually beneficial;

7. The report exposes a very simplistic analysis of malnutrition: The root causes and factors leading to malnutrition in all its forms are many, complex and multidimensional and cannot be separated from their broader social, political and economic determinants. Indeed, the report mentions that “most people are hungry because they cannot afford food, not because there is no enough food in the world”, but leaves this statement completely marginal to its narrative. Indeed, there is no analysis of the drivers of changing dietary patterns and the report exclusively credits demand-side factors like rising incomes and urbanization for the growth in production and consumption of livestock products. This leads the authors to view industrial livestock and its continued expansion as necessary and indeed, inevitable.

Supply side factors are woefully neglected as agents of demand creation and forces shaping the direction of dietary changes. These include the massive marketing of animal-based foods, including fast food, and the enormous advertising budgets of large food corporations; the often close relationships between agribusiness and governments; the policies that speed industrialization of animal agriculture, including subsidies, tax incentives, limited or non-existent regulatory regimes, trade arrangements, public procurement, and few or no mechanisms to cost the enormous externalities of industrial livestock and feed production, or to recover these costs.

At the same time, the report remains silent on emerging consumer movements (apart from a preference for local foods) that claim their rights to healthy, affordable and accessible food options as well as to transparent information, and to be protected (particularly children) from aggressive marketing of unhealthy food and beverages that promote the increased incidence of diabetes, cardiovascular diseases, some types of cancer and other diet-related non-communicable diseases;

8. The myth of protein-demand and the silence on sustainable healthy diets: The projected demand of animal protein in the global south, forming the basis of the argument of an urgent need to augment production of milk and meat industrially, needs to be questioned. The report unequivocally accepts it as a fixed element of its analysis, with hardly any in depth analysis of the unhealthy and medically inadvisable meat and milk consumption patterns of the global north (as highlighted by many nutrition experts and the WHO, which recently declared processed meat as carcinogenic). There is also a lack of discussion about the sustainability and the use of natural resources in feeding human-edible grain to livestock, despite the evidence that out of 100 calories fed to livestock, only 17-30 are then available to humans in the form of meat and dairy --making the system highly inefficient and wasteful for food security. Nor is there an adequate representation about various types of plant-based diets and alternative sources of protein, e.g. mycoprotein. There is indeed a complete neglect of the necessary re-orientation of diets away from the excessive consumption of meat, milk and processed food, rich in salt, sugar and fat, towards healthier, diversified, sustainable and culturally-appropriate diets. These are diets based on higher consumption of fresh produce and diversified sources of proteins. At the same time, the report overlooks the role that offal plays as one of the most valuable parts of animals from a nutrition perspective. In traditional and agro-ecological food systems, the innards are highly valued because of their special nutritional density and value. On the other hand, the industrial food
system devalues these innards and drives them out of the human food system, except for where they see a market opportunity (such as exports to China).

II. Specific comments

- Missing Trends and Drivers: The overarching comments expressed above have profound consequences on the section on trends and drivers and call for significant structural changes to this section. Without prejudice to such necessary redesign, the CSM would like to advance some specific comments on the current draft that should also be taken into consideration:

  a) There is no substantive discussion about the crisis faced by pastoralist communities, nor any political analysis of the drivers that negatively affect their livelihoods and production. Indeed, there seems to be no effort to reach-out to pastoral communities and their knowledge to describe and characterize their challenges in their own terms. Similarly, there is no substantive discussion about the interaction between the so-called “intensive system” with the “mixed-use” system of small producers, as articulated in the overarching comments above. At one point in the report, the authors allude to contract farming as a way that mixed-use small producers are integrated and connected to the intensive largescale industrial system. However, they do not address at all the social impacts of contract farming in countries that have utilized this practice in poultry and pigs for decades, such as the United States, and what learnings this could offer to developing countries moving in the same direction;

  b) The price volatility in world markets for livestock products, as currently observed in dairy products is not discussed (Pages 24-26), despite this being an important scenario in the future. This is especially relevant as it is the most marginalized livestock keeping communities who would benefit when prices increase, if adequate measures to facilitate their access to markets are taken into account. It is also the smaller livestock keepers who are forced to slaughter their cows when dairy prices drop dramatically. However, the issue of price change is only discussed in a context of intensive livestock keeping (Pages 37-39);

  c) The poor quality of data on pastoralism and pastoralists should be noted (Page 32). Firstly, estimates on the area grazed by domestic herbivores (most of which include both pastoralists and commercial ranchers, but with the overwhelming majority of it being pastoralists) range from a) 25% of the continental land b) 31.5% and c) 60% but to which an unquantified portion of the area is assigned to forests in addition to an unclear percentage of mixed systems (crops and pastures, pastured crops or pastured fallow lands), taking into account only data from developing countries.

Regarding the estimate of how many pastoralists there are in the world, the situation is even more dramatic, starting with the fact that there is no agreed definition of pastoralists: What about dispossessed livestock keepers that have been excluded from livestock production and remain as cultural pastoralists? What about extensive livestock keepers? What proportion of one’s livelihood coming from extensive livestock should be considered the reference point for designating her/him a pastoralist? Even in EU countries that have actually articulated payments for sustaining pastoralist production and therefore can have accessible data, data is not collected because it is deemed not of interest. There is therefore a dramatic information gap that does not allow proper design of interventions, nor the much needed services to a population that is often rich in assets (e.g. the value of 50 camels in northern Kenya is much higher than the average bank account of an urban dweller in Nairobi), but poor in living standards (i.e. no access to education or healthcare, poor child survival, no access to financial services or information, and poor nutritional status);
d) Regarding the smallholder mixed farming systems (Page 32-33), it would be good to see further references on the sustainability of their systems as waste recyclers and users of marginal food sources that do not compete with human food (similar to extensive livestock). The lines are quite blurry between extensive livestock systems and smallholder systems where animals represent less than 10 percent of the total farm output in value terms – backyard livestock production takes place in both as a continuum. Considerations of these systems are very important also regarding future change (Page 34) because of the increasing urbanization of the world population;

e) Similar to the narrative on yields, the report assumes unabated urbanization instead of addressing ways of maintaining robust rural communities. For instance, there is a lack of consideration of how urbanization will affect livestock producers (e.g. the example provided above regarding backyard systems, but also issues related to expanding high quality markets and opportunities for marginalized collectives). A section should also consider the opportunities for rural development associated with livestock production as well as the challenges confronted by displaced livestock keepers due to the disruption of traditional production systems associated with mobility (and the consequent loss of production and traditional ways of life);

f) The report remains suspiciously silent on the systemic and systematic policy bias in favour of industrial production and against pastoralists and smallholders. Not only does this take place within developing countries, with continued legislative actions to improve the so-called “enabling environment” for industry, therefore favouring land and water grabs, the exploitation of cheap labour, etc., but it continues to take place within developed countries where the meat industry has all but decimated the population of independent rural farmers. For instance, the current CAP proposals of limiting subsidies to larger farms runs contrary to the much-needed support for small-scale food producers in the EU, and counters any agro-ecological approach of small-scale producers. It means that resources are provided to industrial agriculture to the detriment of those in greatest need. This penalises small-scale cheese-makers, honey producers, etc., who form much of the local food system’s diversity across the EU;

g) As referenced in the overarching comments, trends and drivers should clearly illustrate the major consolidation that is taking place in the sector with as few as 10 companies driving the entire global meat value chain, with as few as 7 companies driving the global grain trade. Many of these companies are also doubling as financial traders of derivatives and contribute to price volatility (something the authors gloss over) with detrimental effects to livelihoods of small producers. Somehow, the power of the industrial complex to drive down prices and create market demand is completely absent from the report even though the industry plays a central role in deciding the future of the livestock sector given its access to politicians in the major meat producing and consuming countries;

 Challenges to achieving sustainable agricultural development that helps meet food and nutrition objectives: These sections are wholly inadequate in presenting the actual social, economic, environmental and health and animal welfare challenges that industrial livestock production has brought to our communities (both for producers and consumers). Nor do these sections address the unique problems that pastoral or agro-pastoral systems face in relation to the industry and other economic development schemes. For instance:

a) In the section on social sustainability, much is said about “missing data” of social impacts, but there is much documentation by trade unions and those working with migrant communities about working conditions in the meat industry, the lack of bargaining power of small producers, and the
transformation of small and independent livestock production under the pressure of “economies of scale”. Furthermore, the analysis on gender and equity is extremely weak and requires a much deeper articulation (reading, reviewing and extensively citing Flintan (2008) and WISP-IUCN (2013) could be beneficial);

b) Economic sustainability is simplified into a discussion about efficiency, trade liberalization and technology, including biotechnology, without actually addressing massive market failures of the livestock industry. For instance, only two European breeders dominate the world market in egg production and only four European and American breeding companies dominate the breeding of broiler chickens. A similar analysis can be done of the pharmaceutical industry in providing medicines and vaccines to the livestock sector;

c) The report remains silent on the need for stabilized feed grain prices to curtail increasingly unsustainable and destructive market volatility for both crops and livestock caused by climate change, diversion of cropland to biofuels, deregulated financial speculation in agricultural commodity markets and rising demand for meat in emerging market countries. Preventing feed grain prices from falling below the actual cost of production avoids an indirect subsidy to industrial livestock production, which in turn allows livestock raised as part of more sustainable crop rotations in the countryside to compete fairly with less sustainable industrial meat production. Creating more sustainable crop rotations that include pasture fed livestock, will become increasingly imperative in the face of weather volatility caused by climate change, because farming with diversified crops rotations, including pasture, is more resilient than expanding feed grain monocultures. Consideration should therefore be given to the establishment of regional, national and global strategic grain reserves as one of the most effective policies available to directly stabilize prices;

d) The section on environmental sustainability features a key issue for pastoralists and extensive livestock keepers. The claim of 14.5% of the total GHG emissions being triggered by livestock is based on higher methane emissions triggered by cellulose metabolism and higher GHG potential of that gas. Pastoralists have protested against this claim, as, even if the raw data may be accurate, the derived policy implication of restricting extensive livestock to combat climate change makes no sense. How can pastoralists be blamed for climate change when this has been happening only during the last two centuries and pastoralism has been practiced since 8000 BC? This is a perfect example of the misguided narrative of aggregating the impact of industrial production with pastoral systems. Along similar lines, it should be clearly stated that the water-related issues (in terms of both high demand and pollution) are exclusive to industrial systems; the case study on pork production in China (Box 5 - Page 36) illustrates very well how traditional systems were designed to avoid these kinds of issues. Lastly, there is no mention at all (Page 55) of the intrinsic capacity of pastoralists for climate change adaptation, despite much evidence of this in a livelihood that makes the most out of climate variability and production heterogeneity;

e) Regarding Box 8 (Page 59), a fundamental missing constraint is the lack of service provision that allows the endogenous development of pastoralist communities. Education, when provided, is done through boarding schools, driving high dropout rates from communities engaged in pastoralist livelihoods and making it nearly impossible for pastoralists to become mobile doctors, lawyers, teachers, and engineers. Healthcare is not provided because it is deemed too expensive. No access to energy means no opportunities to diversify production or process foods at origin, therefore adding value. Financial services are not provided except for new developments with mobile money. However, it remains hardly possible for a pastoralist that may own significant assets but no land (because of the very sustainable communal land tenure systems) to get a loan. Even for pastoralists who have mobile phones, which have caused a revolution by modernizing pastoralist livelihoods, getting network
coverage remains extremely challenging. A further ignored point is related to problematic investments. For instance, many investors insist in “improving” pastoralist livestock breeds, while these have been selected for centuries not because of their productivity but because of their resilience. This error has dire and direct consequences for both sustainability and food security.

f) With respect to environmental sustainability, it must also be noted that, within the conceptual framework, there is no reference to the ecosystem services provided by livestock, on which FAO has produced a comprehensive report. A further review by FAO’s LEAP Partnership has provided much evidence on the positive impacts of livestock on the environment and on sustainability. In the entire section that starts at page 17, there is no mention of the intrinsic sustainability of extensive livestock production in areas of marginal crop production, as well as the challenges to improve an already very efficient system;

g) In terms of food-borne and zoonotic diseases, there is no reference of the convenience of processing food within livestock raising countries and related areas. This would significantly limit the spread of zoonosis and increase the commercialization of products from marginalized areas, increasing the added value of the production in origin. The report is also factually incorrect about the role that the livestock industry’s “intensive” system plays in contributing to antibiotic resistance, nor are the systems in developed countries far from sufficient in dealing with the challenge. The authors should do a proper review of literature, including the Global action plan on antimicrobial resistance recently approved by the World Health Assembly (May 2015). Lastly, the authors completely disregard the role of agrotoxins that are devastating rural communities where genetically modified maize and soy is grown. There is a vast body of evidence from the United States, Brazil, Argentina, Paraguay, among others, that shows the devastating impacts of the chain on public health;

h) The inclusion of animal welfare in the report is welcome, but the discussion is mostly “instrumental” and therefore not fully representative. Indeed, the very real violence of the industrial livestock sector toward non-human animals, in terms of its dire and unacceptably cruel breeding and living conditions for animals (very often in open violation of existing legal frameworks) is not addressed. In terms of animal welfare, the report should put more emphasis on the synergies achieved in non-industrial farming systems, where placing the animals in the environments in which they have evolved, to which they are adapted and where they can fulfil their physical and psychological needs and natures, will result in the best long term outcomes pertaining productivity, livelihoods, health, resource use and ecosystem functions. Such systems, based on reciprocity, work with and benefit from the animals’ natural behaviours instead of going against them, like in industrial livestock farming;

i) It is highly problematic that “trade” is proposed as a solution to food security for developing countries in meeting their “meat” demand. The world market for meat is extremely thin, perhaps even thinner than rice and it is naïve to assume that a dependence on world trade would deliver the food security needs for animal protein given the experience in the food crisis. The fact is that people can live without meat and dairy and even attain nutrition and food security if prices rose. A much more in-depth discussion should take place about the shift to more plant based diets, and the comparative role that non-animal based protein plays in attaining FSN, as mentioned above. Furthermore, it should also be highlighted that the increased trade in animal products made possible by the WTO led to devastating consequences for local production in many developing and least developed countries. A good example is the complete destruction of the poultry sector of countries like Ghana, Togo and others, because of dumping practices. Another significant concern regarding these exports is related to consumer safety. In many West African countries, a secure or closed cool storage chain for imported meat cuts cannot be guaranteed, leading to severe health risks for consumers. Due to missing cold storage chains, poultry has been traditionally marketed alive to reduce health risks. This
sustainable practice is increasingly sidelined. Furthermore, the cheap price of imported meat cuts has negative effects on traditional livestock keepers as their products are replaced by imported meat. Similar dynamics can be reported within the dairy sector.

III. Conclusions regarding Pathways, Responses and Recommendations

The significant concerns articulated in this CSM feedback demand a fundamental shift in the overall narrative of the report and its conceptual framework. The eight overarching comments provide guidance on how to possibly proceed with the new draft:

i. Firmly ground the report in the context of the CFS and its GSF, with particular reference to the Right to Adequate Food and Nutrition and the broader human rights framework;

ii. Provide an appropriate presentation of Food Sovereignty and Agro-ecology as alternative political visions and conceptualizations of ways of life, production and socio-economic relations;

iii. Correct the narrative on who really produces and provides food for FSN and highlight the centrality of smallholders in feeding the growing planet;

iv. Provide a disaggregated presentation of the production systems within the livestock sector that highlights the differences (in terms of ecological footprint, rural livelihoods, workers' conditions, animal welfare, etc.) of the intensive-industrial sector versus the pastoralist and smallholder systems;

v. Expose the existing tensions between these two models of production and marketing, and the existing political economies that favour industrial production and intensive breeding and thus the impact on FSN;

vi. Assert the primacy of life, livelihoods, ecology, culture and traditions over narrowly-defined economic reasoning of productivity and efficiency;

vii. Rectify the narrative on nutrition with a political economy analysis of the evolution of diets and challenge the appropriateness in terms of social, environmental and health factors of the intense consumption of meat and milk;

viii. Demystify the exclusive focus on meat and milk as primary sources of proteins and provide a broader perspective of available alternatives.

It is self-evident that pathways, responses and recommendations that emerge from a misconstrued narrative and conceptual framework would require a complete redesign of the report. We therefore refrain from commenting further on the relevant sections at this stage. As CSM, we remain available to provide additional support to the HLPE Task Team in redirecting the report towards its intended objectives.

APPENDIX - REFERENCES

In addition to the references directly included in the comments, we would like to offer an initial list of additional references. This list is clearly limited, given the limited time available, and additional references will be provided in future submissions.

Agro-Ecology

• Report of the International Forum for Agroecology, Nyéléni Center, Sélingué, Mali, 24-27 February 2015, including the Declaration of Nyéléni 2015


• Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter, UN General Assembly, A/HRC/16/49, 17 December 2010

http://www2.ohchr.org/english/issues/food/docs/AHRC-16-49.pdf


Livestock and Environment/Sustainability, including Climate Change and Community Impacts


• Federal Ministry of Food and Agriculture, Germany (2015) Pathways to a Socially Accepted Livestock Husbandry in Germany. (English version)

http://www.bmel.de/SharedDocs/Downloads/EN/Ministry/ScientificAdvisoryBoard-Pathways.pdf?__blob=publicationFile

In German:


http://www.bmel.de/SharedDocs/Downloads/Ministerium/Beiraete/Agrarpolitik/GutachtenNutztierhaltung-Kurzfassung.pdf?__blob=publicationFile


http://www.ncifap.org/_images/pcifapfin.pdf - full report

http://www.ncifap.org/_images/pcifapsmry.pdf - summary


http://www.ncifap.org/_images/PCIFAP_FW_FINAL1.pdf

• Pew Commission on Industrial Farm Animal Production, Environmental Impact of Industrial Farm Animal Production, 2008

http://www.ncifap.org/_images/212-4_envimpact_tc_final.pdf

• Pew Commission on Industrial Farm Animal Production, Community and Social Impacts of Concentrated Animal Feeding Operations
http://www.ncifap.org/_images/212-4_EnvImpact_tc_Final.pdf


- Greenpeace International, Eating Up the Amazon, April 2006 http://www.greenpeace.org/usa/research/eating-up-the-amazon/


- Cattle, Soyanization, and Climate Change: Brazil’s Agricultural Revolution, 2011 www.brightergreen.org/brazil

(Sustainable) Diets, Nutrition and Public Health


WHO Global Strategy on Diet, Physical Activity and Health: Final Strategy Document and Resolution, May 2004
http://apps.who.int/iris/bitstream/10665/43035/1/9241592222_eng.pdf?ua=1

http://www.ncifap.org/_images/212-2_AntbioRprt_FIN_web%206.7.10%20.pdf


More Specifically on antibiotic resistance and food animal production:

Alliance to Save Our Antibiotics, 2014. Antimicrobial resistance - why the irresponsible use of antibiotics in agriculture must stop, Available at: http://www.soilassociation.org/LinkClick.aspx?fileticket=G9q4uEb5del%3d&tabid=1841.


Agricultural Development, Economics and Trade:

- Keats, S., and Wiggins, S., Future Diets Implications for Agriculture and Food Prices, Overseas Development Institute, January 2014

- Report of the Secretary-General on agriculture development, food security and nutrition, August 2014

  http://www.ncifap.org/_images/212-6_PCIFAP_Ecnmics_v5_tc.pdf

- The Truth Behind the CAP, Birdlife, EEB, Greenpeace and others,

Industrial Livestock and Animal Welfare

  http://www.ncifap.org/_images/212-7_PCIFAP_AmlWlBng_FINAL_REVISED_7-14-08.pdf

- Compassion in World Farming, Stop – Look – Listen: Recognising the sentience of farm animals (summary report), undated.


Working Conditions in Meat Processing Plants

- Oxfam America, Lives on the Line: the Human Costs of Cheap Chicken, October 2015
  http://www.oxfamamerica.org/static/media/files/Oxfam_Poultry_Workers_Brief_October_26_5UhpyVF.pdf

- Southern Poverty Law Center 2013. Unsafe at these Speeds. https://www.splcenter.org/20130301/unsafe-these-speeds

  http://www.ncifap.org/_images/PH_FINAL.pdf

49. Alastair Johnson, Defra, United Kingdom
Having circulated it around some colleagues here, just a few comments in Section 3 which can be found in the attached.


Alastair

50. Brian Revell, Harper Adams University, United Kingdom
I have provided detailed in situ textual comments on the draft document which are included in the two attached files. A pdf file covers Chapters 1,2,3,and 5.


51. Chiravuri Kameshwar Rao, Intercooperation Social Development India, India
The document meticulously covered all aspects related to livestock. I feel the coverage on climate change impacts is very brief. The impacts of climate change are likely to be more severe in developing countries than developed countries. The document does not capture climate change threats adequately. I have attached Indian experiences on livestock which includes likely threats from climatic change.


C.K.Rao
Intercooperation Sociaal Development India

52. Moises David Rojas, Inspector MIC/Punto Focal FAO, Dominican Republic
Mi aportación al dialogo científico del equipo HILPE y el Comité Directivo, con el fin de fortalecer el informe. La respuesta la daré según el orden de las preguntas que sugieren el mismo informe. Al final presento un breve comentario para completar la respuesta a las preguntas faltantes.

1.- El informe es muy amplio en el análisis ya que abarca las cuestiones sobre el desarrollo agrícola sostenible, para alimentar la creciente demografía del mundo que ha tenido un importante de crecimiento de 750,000 millones de personas. Contempla la deficiencia de caloria crónica menos de 1,800 kilogramo al día, el ‘Hambre oculta o deficiencia de micronutriente, la falta de acceso al agua, el sobre peso que afecta a un tercio de la población adulta del mundo que por consumir azucares
refinados contraen enfermedades como la diabetes, enfermedades autoinmunes y cánceres. El cambio de los sistemas alimentarios por el aumento de los ingresos, la urbanización descontrolada, la tecnología, social y económico. El aumento de los precios internacionales. El gran desafío del aprovechamiento de los alimentos, es decir que no se desperdicie más comida y a la vez el desarrollo de una agricultura sostenibles que nos conduzca a una mejor FSN, de la cual dependen 3 trabajadores del mundo y 2 millones de pequeños productores para su sustento y garantizar el desarrollo económico global y el crecimiento urbano, garantizando al mismo tiempo la seguridad alimentaria. El rendimiento que han tenido los productos básicos como el arroz, trigo y maíz a través de la implementación de la Revolución Verde. El uso excesivo y la mala gestión de insumosagrícolas que resulto en una seria contaminación del suelo y del agua. El acceso a la tierra y el agua las cuales son esenciales para el sostenimiento de una FSN estable. Contempla como la intensificación de la agricultura y la producción a pesado en los recursos y los sistemas naturales del mundo con la preocupación en torno a la disponibilidad y calidad del agua, la degradación del suelo, la calidad del aire y las emisiones de gases de efecto invernadero que causan el cambio climático. Así como el desarrollo de las unidades especializadas de producción grandes, desplazando al las pequeñas unidades agrícolas. Además contempla el cuidado y el bienestar sobre los animales de granja y el riesgo de enfermedades humanas y animales asociados a la producción agrícola. Las Enfermedades Transmitidas por los alimentos que se deriva de una contaminación biológica (patógenos, microbios) o productos químicos los cuales son una de las causas de los problemas de salud humana. El informe llama la atención y mantiene el equilibrio entre el desarrollo agrícola y el sector ganadero con respecto a la contribución relativa a la FSN.

2.- El informe esta bien estructurado entorno a las tendencias, desafíos, respuestas. Los mismos son amplios, adecuadamente considerados y bien equilibrados entre capítulos.

3.- El enfoque como esta clasificados en cuatro categorías es excelentemente útil y responde a las interrogantes que se presentan cuando se estudia el sector ganadero. Es un recto el panorama que se describe en el informe, si vemos que los productos que se obtienen de este sector son esenciales para el desarrollo físico, emocional, social y económico del hombre y a la vez enfrentar los problemas de salud que los mismo acarrean como el cáncer, la obesidad, la diabetes, gripe aviar, entre otras, nos plantea una oportunidad de desarrollar las capacidades para garantizar la alimentación de los 7,000 millones de habitante del planeta y los 9,000 millones para el 2050.

4.- Todos los estudios que conozco provienen de esta misma fuente. No conozco otro informe que provea las mismas informaciones que este.

5.- Es un reto para los próximos períodos especialmente en los países en desarrollo que enfrentamos situaciones que cada día se acrecientan más. La falta de una política que se aplique horizontalmente, que beneficie a todos no a unos poco, que desarrolle el sector capacitando a los productores, invirtiendo en la compra de vientre para la reproducción de ganados, que se establezca vigilancia en la obtención de los piensos para evitar la contaminación por las ingesta, la vigilancia en las granjas, en la forma como se transporta los mismo al matadero y a la vez la vigilancia en los mismo mataderos para garantizar que en el proceso no se contaminen las carnadas, la manipulación empaquetado y refrigerados hasta llegar al consumidor que obtenga una alimentación saludable. Y quisiera plantear una situación que esta en desventaja los productores de los países en desarrollo comparándolos con los países desarrollados, es los subsidios a los productores, por ejemplo: el gobierno dominicano subsidia a los sectores como el trasporte publico pero nunca se ha contemplado subsidiar a los productores agrícolas y ganaderos a pesar de todas las dificultades que enfrentan diariamente y de la importancia que representan los trabajadores del campo. A pesar de todo esto enfrentamos el subsidio que les facilita a sus productores agrícolas los gobiernos de los países desarrollados, las MSF, los
obstáculos técnicos, las vedas entre otras, que impiden el desarrollo de nuestro comercio internacional que va en detrimento de nuestros productores.

6.- Para aumentar la productividad que se traduce en una mayor seguridad alimentaria y nutricional para todos requiere un cambio en el enfoque de los responsables políticos y las partes interesadas para delinear las metas y vías estratégicas sostenibles de desarrollo agrícola, y un comienzo para implementar acciones concretas con carácter de urgencia para lograr esas metas se requiere de los métodos que el informe propone lo cuales son esenciales para el sostenimiento de la agricultura y la alimentación en los años venideros. Es necesario que se tomen las decisiones para que de repuesta certeras y que se puedan adaptar a los diferentes escenarios reconociendo la importancia y la urgencia de los desafíos.

7.- En mi experiencia personal les puedo hablar son una practica que estoy trabajando prestándoles asistencia en materia de comercio internacional y desarrollo de exportaciones. Es un nucleo de agricultores que aglutina pequeñas asociaciones de pequeños y medianos productores agrícolas, de la comunidad de padre las casas, de la provincias de Azua, Republica Dominicana. A través de esta práctica reciben asistencia para mejorar los productos, financiamiento para invertir en la compra de plantas para sembrar, almacenamiento para sus cosechas, insumos a buen precios, mejores precios al momento de negociar sus productos, cuando un productor necesita ayuda el nucleo le asiste ya que todo los miembros se volcán a asistir al socio en necesidad, la decisiones se toman en asamblea general para que todos los socios participen de la misma, tanto las mujeres como los hombres tienen el mismo estatus y la misma participación en la toma de decisiones. El nucleo esta dirigido por una directiva que administra los intereses de los demás socios. Este proyecto de asociativa es un verdadero éxito para la administración y puesta en práctica las políticas de asistencia a los pequeños y medianos agricultores que garantiza la Seguridad Alimentaria y la FSN a nivel mundial, y es sostenible a través del tiempo.

Comentario.

La agricultura es una fuente importante de crecimiento, que representan el 32 por ciento de GP el crecimiento en promedio, sobre todo por su gran participación en el PIB la "agricultura basada en", la agricultura y las industrias asociadas son esenciales para reducir la pobreza masiva y la inseguridad alimentaria y requerirá una revolución de la productividad en la agricultura minifundista, dominada en algunos países por la mujer.

La pobreza extrema rural debe ser dirigida al ofrecer múltiples vías de salir de la pobreza, incluso mediante un cambio de mayor valor la agricultura, la actividad económica no agrícola de base más rural y asistencia a las personas en transición de la agricultura. En los países "urbanizadas" también, la agricultura puede ayudar a reducir la pobreza rural restante si los pequeños propietarios pueden conectarse a los mercados de alimentos modernos y buenos puestos de trabajo creados en la agricultura y agroindustria, junto con la introducción de los mercados de servicios ambientales.

El acceso al mundo de las importaciones a precios de alimentos básicos pueden ser favorables a los pobres, en particular para los pequeños agricultores los productores agrícolas que son compradores netos de alimentos. Los costes de desarrollo y reducción de la pobreza mal dirigido de los subsidios en algunos países en desarrollo, con el argumento de que las distorsiones agrícolas y protección aumenta el precio de los alimentos pueden resultar perjudiciales para el crecimiento de la productividad agrícola, así como consecuencias negativas para la seguridad alimentaria. La tendencia en los últimos años por estos costos sean mitigado en algunos países en desarrollo mediante una mejor focalización de apoyo y otras intervenciones.
La solución no es reducir la velocidad de desarrollo agrícola - es buscar sistemas de producción más sostenible... que para poner en practica esta promesa también requiere la mano visible de todos lo Estado - la provisión de bienes públicos básicos, mejorar el clima de inversión, la regulación de la gestión de los recursos naturales, y asegurar resultados sociales deseadables”

La dimensión social de la agricultura sostenible el desarrollo es, pues, una de las zonas más difíciles de abordar, aunque muchos de los problemas son menudo inextricablemente vinculado a las dimensiones económicas y ambientales.

También es evidente, que muestran que la manera en que el ganado evoluciona de producción y consumo llevarán de manera desproporcionada sobre el estado de la seguridad alimentaria mundial y la nutrición, así como en la salud de los ecosistemas globales.

Muchas gracias, Dios les Bendigas.

53. Animal Production and Health Division (AGA) FAO, Italy

FAO-AGA’s comments on the HLPE draft V0 on “Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock”

1. Overall scope and approach to the question of sustainable food systems

The report is well written and provides relevant information for policy makers to understand the challenges of sustainability to the livestock sector. However, the question it’s trying to address should be better framed. The current title suggests that the report is addressing the whole of agriculture with a specific focus on livestock. Other subsectors (crop, forestry, fisheries and aquaculture) should therefore be included and the connections/integration between them and livestock should be better explained. This answers the author’s question 3.

The central role of livestock in agriculture is well highlighted yet could be further reinforced by stressing the synergies with other agricultural sub-sectors. For example, cropping systems, timber, aquaculture, benefit from nutrients cycling triggered by livestock. Manure is essential in securing key soil functions such as fertility, physical stability and support that is essential for plant growth. Livestock also turn non edible resources such as grass and other roughages but also wastes from food chains, into edible products. About 25% of livestock feed ration at global level is provided by crop residues (straws and stover) and 8% by agricultural by-products (brans, meals etc.).

The approach to the crop sector could also be improved/completed to include aspects such as the increasing yield plateaus of main staples, the ecological responses to technological solutions (herbicide resistance in weeds in GM crops; increasing costs of inputs, concentration in the breeding and agrochemical sectors, impacts of pesticides and herbicides – including for feed production- on terrestrial and aquatic ecosystems as well as on human health. Some related further insights beyond the Alexandratos and Briunsma report can be found in Conforti(ed) Looking Ahead in World Food and Agriculture. Perspectives to 2050

2. Structure of the report

Though the overall structure of the report is good and provides the adequate chapters to address the challenges of sustainability in livestock supply chains, the developments within chapters could be
refocused or reorganised. To address sustainable agriculture development, Chapter 1 should be structured around the definition of sustainable food systems (now only provided as footnote on page 21) and the contribution of livestock to food security and nutrition as part of food systems. Chapter 2 (Trends and Drivers) should be structured around identified and documented drivers such as demand for food and livestock products in particular as well as resource scarcity (feed, water, land, nutrient, climate etc.) and market globalisation. Chapter 3 (Challenges), instead of addressing the pillars of sustainability one after the other, should look at them through the lenses of food systems. Finally, Chapter 4 and 5 should provide real action points and proposals (cf point 3 on recommendations).

3. Consolidating livestock specific recommendations

In order to improve the reach of the report, a limited number of sector’s specific recommendations should be available upfront, as the reader may expect from the title of the report. The current list of recommendation appears too long and a large number of them don’t focus on livestock. We suggest the following recommendations to be considered as priorities, building on the current recommendations from the report:

- **ON DATA, INFORMATION AND KNOWLEDGE (1f +6 +9 + 24):** Increase efforts to improve data collection, analysis and tools on sustainable livestock systems and their contribution to food security and nutrition, including at micro, meso and macro level and taking advantage of progresses made in the area of methodology harmonization, including the use of modelling and life cycle assessments. Existing efforts such as the Global Livestock Environmental Assessment Model –GLEAM or the Livestock Environmental Assessment and Performance Partnership LEAP can be used as examples here.

- **ON PROCESS (1.e and 23):** Provide the necessary institutional and financial support to the range of multi-stakeholder partnerships at national, regional and global level that will be instrumental in ensuring a sustainable growth of livestock and maximizing its contribution to the SDGs (link to the Global Agenda for Sustainable Livestock).

- **ON LIVESTOCK PRODUCTION (8):** Focus policies and investments to reduce “yield gaps” between the best and worst performers in specific systems and location, i.e. promote the widespread adoption of already available good livestock practices, which is critical to achieving sustainable livestock development and food security, particularly in low income food deficit countries (Gerber et al, 2013).

- **ON RESILIENCE:** Provide support to livestock food systems to be prepared to respond to shocks and crises (e.g. economic/financial, disease, climate change, etc), which will require working with climate scenarios, building an increased capacity to deal with vulnerability and change as well as mechanisms to support recovery from shocks. AGA’s work on resilience in the African drylands can support this point.

- **ON CONSUMPTION OF LIVESTOCK PRODUCTS (18b):** Focus policies and investments to foster healthier diets, encouraging increased animal protein consumption in population suffering undernutrition and micronutrient deficiencies and more sustainable levels of consumptions in other regions/countries.
Asunto: Comentarios al primer borrador del informe “Desarrollo agrícola sostenible para la seguridad alimentaria y la nutrición, incluyendo el papel de la ganadería”.

La Representación Permanente de México agradece el envío primer borrador del informe “Desarrollo agrícola sostenible para la seguridad alimentaria y la nutrición, incluyendo el papel de la ganadería”, elaborado por el Grupo de Alto Nivel de Expertos en Seguridad Alimentaria y –en atención a la solicitud del Grupo- se permite transmitir los siguientes comentarios de sus autoridades nacionales:

- El documento cumple de manera integral respecto al tratamiento de las diversas áreas para poder tener acceso a los alimentos, con objeto de lograr la seguridad alimentaria. Asimismo, cumple con el objetivo propuesto de dar a conocer la importancia del rol del sector ganadero en el desarrollo sostenible agrícola para garantizar la seguridad alimentaria y nutricional de las poblaciones.
- En el informe se establecen de manera concreta los sistemas de producción ganadera actual y los efectos que estos han tenido en los aspectos económicos y ambientales; sin embargo, dada la importancia que tienen los alimentos de origen animal en el consumo de la población y de sus beneficios en el estado de nutrición para combatir la desnutrición y algunas deficiencias nutricionales de los individuos vulnerables, resulta necesario incluir al sector ganadero en el marco de la agricultura sostenible.
- Se reconoce a la dimensión social de la sustentabilidad como la más complicada de lograr, ya que se encuentra constituida por una amplia gama de determinantes globales, las cuales se diversifican en cada país lo que complica su estudio y comparación.
- El informe resalta el reconocimiento de la salud y la alimentación humana como un aspecto continuo de la salud del medio ambiente, por lo que se considera que el desarrollo sustentable agrícola y ganadero garantiza la seguridad alimentaria y nutricional de las poblaciones humanas, así como el cuidado y mantenimiento de sus ecosistemas.
- La inclusión de los estudios de caso en el informe facilitará a los tomadores de decisiones y otros interesados en seleccionar y adecuar una estrategia en este contexto.

Recomendación:

- El capítulo 3, sección 3.4.2 no debiera enfocarse únicamente a las enfermedades infecciosas ocasionadas por el consumo de los productos de origen animal, por lo que se estima que en dicho apartado se debe hacer referencia al consumo excesivo de ciertos alimentos que están vinculados con el desarrollo de la obesidad y las enfermedades crónicas no trasmisibles, ya que si el objetivo es buscar la seguridad alimentaria y nutricional, se estima de especial importancia resaltar los efectos adversos en la salud por el consumo inadecuado de estos alimentos.

Mucho se agradecerá tomar en cuenta estas aportaciones al proyecto de informe.

Atentamente
55. Brian Lindsay, Dairy Sustainability Framework, United Kingdom

Dear CFS-HLPE,

Please find attached [below, Ed.] some details regarding the dairy sectors activities in the important area in which you are working. We would be pleased to support any following work programs as a result of this excellent document that you have compiled.

The Dairy Sector: Ready to Help Achieve the Sustainable Development Goals


Dairy Sustainability Framework Annual-Report 2014


Many thanks for considering the attached.

Yours sincerely,

Brian Lindsay

Development Director

The Dairy Sustainability Framework

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http://dairysustainabilityframework.org

The GDAA has taken time to read the report Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock and would like to congratulate all involved in its development. We find the report to be an excellent and balanced review of the latest situation and where the challenges lie.

We would like to take this opportunity to share with the HLPE an initiative that has been established by the dairy sector globally in an effort to address, support and progress many of the issues that are expressed in the report.

The Dairy Sustainability Framework (DSF) was launched in Yokohama in November 2013 at the World Dairy Summit. The Dairy Sustainability Framework is the GDAA program for aligning and connecting dairy value chain sustainability initiatives to demonstrate leadership and support progress globally.

The Framework has three key objectives:

• Align global ambition to regional activity on key sustainability issues in a coherent way
• Map and Connect existing activity addressing regional priorities, allowing for cross-fertilization
• Reveal opportunities to develop new or progress existing activity to improve performance
The GDAA was formed in 2009 by the dairy sector in response to the FAO report, Livestock’s Long Shadow. The sector committed to reducing GHG emissions and also launched a website demonstrating the sum of the global dairy activity designed to reduce GHG emissions. This initiative was excellent at the time, though it was not able to demonstrate continuous improvement of the initiatives and importantly only focused on the single issue of GHG emissions.

By 2011/12 interest was growing from a range of organizations and external stakeholders regarding the ‘impacts’ associated with the production of milk and dairy products. At the same time, the Governors of the GDAA (and many in the industry) recognized that sustainable production is more than the single issue of GHG emissions and a more holistic and encompassing approach was necessary if the sector was going to responsibly thrive in the future.

What followed was a major piece of review work. The Governors of the GDAA proactively engaged the services of a globally recognized and experienced (in the sustainability field) consultancy (SustainAbility) to identify how the dairy sector could achieve the desired objectives in a manner that participants of the dairy value chain globally can actively engage regardless of their starting point/progress in addressing sustainability issues.

The dairy sector was closely connected with the study to ensure that whatever the outcome, it was a concept that could feasibly be delivered by the sector. Hence, the launch of the Dairy Sustainability Framework.

Some key points that you should be aware of regarding the DSF are:

• The DSF is not a ‘sustainability standard’ but more a genuine support and demonstration of continuous progress by the dairy sector globally in sustainability throughout the value chain.

• The framework considers the three pillars of the sustainability spectrum with six Environmental, three Social and two Economic criteria that the global sector are prioritizing and aligning their work programs under.

• The framework covers the whole dairy value chain and not just the farming sector.

• The program has been designed by the dairy sector and will continue to be operated by representatives of the dairy sector.

• Though the Governance is by the dairy sector there is a multi-stakeholder Advisory Council supporting/challenging the leadership and at a local level the members are required to establish a multi-stakeholder ‘management group’ in support of their ‘local activities’ under the Framework.

• The DSF does not dictate to members how they should design or operate sustainability related initiatives they choose to implement. This allows local solutions to local challenges to be explored, created, implemented and monitored. The DSF can provide guidance and support to the membership in achieving their aspirations via connection with other members working in the same space. We can all learn from each other.

• The DSF is focused on connecting different sustainability initiatives globally. A database has been developed where members can share and search and learn from projects under each of the programs 11 sustainability criteria. This will save substantial time in deciphering how to design and implement initiatives to address identified sustainability priorities for member’s unique circumstances.

• The DSF reports on the continuous improvement by the sector as a whole with Implementing Members informing the DSF Secretariat on an annual basis of their individual program progress.
• A membership Development Group assists the Secretariat in shaping new proposals prior to being considered by the Governors. Here, every Implementing Member has the opportunity to engage and influence the evolution of the DSF.

• There is no direct financial cost associated with joining the DSF. The Governors have agreed that they did not want cost to be a barrier to membership. It is so important that we engage all dairying geographies so potential barriers to membership have been considered and where possible removed or reduced.

Please find attached the first DSF Annual report that effectively establishes the ‘starting point’ for the Framework. It is from this point that members will be required to provide their annual performance against their unique targets and KPI’s, so that the Framework can establish the continuous improvement by the sector globally.

Through the Global Dairy Agenda for Action, the dairy sector (with the Governing organizations represent over 80% of global milk production) has developed a platform where the sector is taking control of issues and proactively collaborating to solve challenges, recognizing the diversity of production systems and different priorities at a local level. By taking the holistic approach and aligning the sector under a common vision of sustainability, the dairy sector will be able to demonstrate its continuous improvement and progress.

Many thanks for taking the time to consider this letter and attached documents in support of the excellent work that you have already completed.

Yours sincerely,
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56. Roger Gilbert, United Kingdom

2.2 The role of livestock in agri-food systems

The report should consider the volume of 'scientifically-formulated compound feeds' (SFCF) (a respected industry report shows a total to be 982 million tonnes used in 2014 globally - excluding straights and forage feeding) used in livestock and farmed fish production. SFCF make best use of all types of raw materials based on their nutritional and safety standards - many of which are not fit for human consumption and range from coarse grain and sub-standard cereals to by-products from the oilseed crushing industry, the cotton-seed and palm-oil production industries to name just a few through to the significant consumption of unwanted or un-saleable food products surplus to the food chain requirements.

Based on the present global population of 7.2 billion people and 982 million tonnes SFCF produced, the average per capita consumption of these feeds is 133.5kg. As a benchmark all countries should be providing their populations/consumers with a feed industry that produces/livestock industry that uses more than 133.5kg/capita to provide the most cost-effective, efficiently used raw materials under the safest possible conditions. Ranking countries by their per capita consumption of SFCF identifies those
countries not meeting the nutritional needs of their livestock industries to meet a 'world average' to those seriously failing their populations.

This benchmark identifies those countries in greatest need of assistance and when overlaid with poverty and food insufficiency will help governments and industry target food security on an economic footing and long-term investment basis. Using the SFCF benchmark, FAO and other international bodies will be able to monitor progress towards alleviating hunger and even identify improved nutrition gains made over time by individual countries compared to others.

57. Florence Egal, former FAO, Italy

I went through the document which is indeed wide ranging and I went through the questions. But I don't think my comments can fit with the questions.

By and large, the document follows the conventional supply-driven commodity and macro agriculture economy approach. Given the title, it would have been nice to give more attention to diets and more generally to the demand side of agriculture production. It would have been interesting to adopt a food systems approach starting from a local territorial approach, where the economic, social and environmental dimensions of sustainability could have been pragmatically addressed. Some elements of this appear in section 2 but cannot contribute to a much-needed alternative vision.

The present shift in diets is the outcome of the prevailing economic development approach and it is therefore ethically incorrect to use it as a basis for prospective work, at a time when they are being denounced as unhealthy, damaging to the environment and undermining the livelihoods of small scale farmers and producers. It is urgent we ensure that diets are sustainable and revisit accordingly agriculture production, including livestock. The issue of meat and dairy consumption with its impact on health, farming systems and the environment (contamination and greenhouse gas emissions) is high on today's agenda, and should be given attention from the start of the report.

The bibliography is very impressive, lists major authors and includes most of the key documents. It is therefore regrettable that the team did not include the expertise to bring out related issues and suggestions.

It is also true that research has given little attention so far to the social dimension of agriculture development and that there is an unbalance in terms of scientific publications. This is due to a great extent to the productivist approach and related funding.

The report should therefore advocate public funding to address this gap.

Given the number of projects addressing these emerging issues (e.g. http://livewellfortlife.eu/), some information could be found by reviewing grey literature?

Florence Egal

58. Lejeune Hervé, Conseil Général de l'Alimentation, de l'agriculture et des Espaces Ruraux (CGAAER), France

Abstract: International initiatives for influencing the evolution of the livestock sector worldwide

About livestock, we can distinguish three kinds of organised international initiatives for influencing the evolution of the sector worldwide:

- Projects based on an international consensus which are leaded in the framework of international organizations with some of their members states,
• International professional organisations, historically the oldest, which gather national
governments and the private sector or only professional organisations,

• New “influence initiatives” based on a lobbying approach gathering private actors (producers
or firms) and more rarely NGOs.

8 “key factors” have been identified in evaluating the influence game in livestock production and
markets at international level:

1/ The demand of products issued of livestock (meat, milk, eggs and leather) is increasing quickly for a
long time. This is the main cause of the present “Livestock revolution” which is impacting the
traditional livestock sector through integration and industrialisation processes.

2/ The “Livestock revolution” is engaged without “Supreme guide” meaning without international
governance and more often without national policies in the sector.

3/ The increasing strong demand of products issued from livestock is so quick that tentatives for
building a consensus on an international governance are inefficient today. International trade
agreements drive the productions and the markets and build the leadership of few countries on the
sector.

4/ The actions and speeches for reducing the consumption of meat, “against meat” or “against
industrial food”, mainly from some NGOs, have a limited impact in front of the magnitude of the
demand.

5/ In the meat sector, the international leadership is moving to the American continent (USA, Canada
and Brasil).

6/ Despite this trend, the role of the main international actors is not definitively fixed due to
agricultural constrains, political, social and economical reasons.

7/ In the large majority of african countries, Africa representing 20 % of the world population in 2050,
there is no real agricultural policies and a fortiori no policies for livestock.

8/ The Research in the livestock sector have few impacts on the “Livestock revolution”.

Cartographie des initiatives d’influence en matière d’élevage au niveau international

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-
hlpe/files/resources/Elevagerapport%20final11062015.pdf

59. Morgane Danielou, Private Sector Mechanism (PSM), France

We congratulate the HLPE project team on producing the zero draft of the report on Sustainable
Agricultural Development for Food Security and Nutrition, including the Role of Livestock. It is the first
time the crucial role of livestock in global food security has been addressed in such a comprehensive
manner.

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable
agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the
livestock sector because of its importance for both nutrition and sustainable futures. Do you think that
the report is striking the right balance between agricultural development overall and the livestock
sector specifically with respect to their relative contribution to FSN?
PSM believes that the report succeeds at giving a broad overview of the challenges faced by sustainable agricultural development while providing a good focus on the livestock sector. It succeeds at providing information on both these subjects in a balanced way.

However, we believe that the report could be further improved by emphasizing that all production systems including non-livestock agriculture are facing a wide range of sustainability challenges with different livestock farming regions having their own unique challenges. Science-based best practice that is targeted to local needs is required to be promoted throughout. It needs to be recognized that as biological systems, change takes time in order to achieve the desired improvements and that best practice needs to be promoted throughout.

In addition, the report has a bias towards agriculture in developing countries and seems particularly favorable to smallholder farming systems. While it is indeed the CFS’ mission to foster agriculture in developing countries, it is important to address food security and nutrition as a global issue. All production systems -regardless of criteria such as size, model - make important contributions. As the report recognizes “There is not one policy formula that is suitable in all situations, but there are lessons to be learned from experience” (page 10 line 9).

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

The report is ambitious and covers many issues and subjects. It is fairly long but the scope is also wide. Overall, we believe is it well structured though could benefit from the following:

-There are many repetitions and issues that seem to be cross-cutting: is particularly the case for nutrition/diet issues. We wonder if those could not be centralized into a section.  

-There is very little on the opportunities that exist and on the existing solutions that have been developed. This gives the impression that all challenges have remained untouched and that all the work to make agriculture more sustainable needs to start now from scratch. It would be very important to provide more background documentation about the many approaches that exist already and the technological advances that have been made to increase efficiency and productivity. The dairy sector, through the Global Dairy Agenda for Action program and The Dairy Sustainability Framework, has developed a facility to collect and share sustainability best practice with the global sector to both facilitate a more rapid progress. The Framework will be able to provide the data and demonstrate the sector’s continuous sustainability improvement.

-The report makes numerous references to intensification highlighting the negative aspects only without also acknowledging the benefits. There is room and very much a willingness, in particular from the private sector, to improve all production systems, including intensive. We note that the discussion is more balanced in the concluding comments section 2.7.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?
PSM appreciates the effort to provide categories. Unfortunately the current proposal does not succeed at capturing the existing variety of models that exist around the world. The four categories proposed go too far in trying to simply.

Several of our members involved in the livestock sector cannot currently fit in the four proposed categories. For instance, dairy cooperatives in Western Europe with a specialized production model, with approximately 80% of the feed grown at the dairy farms as many are mixed farming systems or in the region, cannot for now be classified in the report. PSM, therefore, proposes to diversity the categories and be more specific about the challenges and opportunities faced by each.

It would also be of interest for the analysis to move beyond existing categories towards envisaging new systems that combine the best of various systems.

In addition to diversifying the categories, we propose to edit the description of the different categories to ensure that a neutral approach is taken in describing the system to avoid underlying statement asserting that one system/category may be more desirable than others.

Finally, the four categories do not seem to be considered later on in the report so a decision would need to be made whether chapter 3 and 4 should follow the classification.

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

The current overview of scenario study is thorough. The PSM is not aware of reports that would have been overlooked. We appreciate that many reports were highlighted providing a great diversity of view and opinions to the future of agriculture.

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

The PSM is favorable to a greater focus being given to the role of technology, research & development. It was striking to see such a short section dedicated to the role of mobile technology with no reference to the prospects of using mobile technology for livestock traceability. The report should provide a much greater overview of the existing and future solutions to increase the sustainability and resilience of agricultural systems, and provide examples for the livestock sector as well. For instance, the report could cover environmental mitigation technologies. New greenhouse gas emission mitigation technologies are being developed.
For more information: Global Research Alliance on Agricultural Greenhouse Gases and Sustainable Agriculture Initiative (SAI) Platform. 2015. ‘Reducing Greenhouse Gas Emissions from Livestock: Best Practice and Emerging Options’ available at:


In addition, the PSM believes that some key issues could be better represented, including:

- Animal welfare: A section on re-emerging diseases is missing. Improving broiler welfare through changing to free-range systems may cause certain diseases to re-emerge (Hiemstra and Ten Napel, 2013, page 13+53). Animal diseases moving from low risk to high risk (e.g L to HPAI, like the 2015 case in the UK) should be added.

- Antibiotics: It is important to address here the concerns of veterinarians that some retailers and food chains move towards “food from animals that have not been treated with antibiotics” (contrary to no prophylactic use and shown improvements in decreasing use of ABs). This goes against the oath of veterinarians to treat animals in need of care, and is detrimental for animal welfare. The US poultry veterinarians have expressed their serious concerns in this respect. It is about strategic use of anti-microbials as is practiced in human medicine and although reduction for some may be prudent it is not about a blanket reduction. At an EU workshop held on October 26th 2015 under the Luxemburg presidency, it was reasserted that antibiotics would need to remain part of the therapeutic arsenal against bacterial diseases. http://www.eu2015lu.eu/en/agenda/2015/10/23-conf-agri-antimicrobiens/index.html. On the topic of use, the quote of the Van Boeckel article is maybe justified but the paper relies on assumptions and does not take into account some recent steps taken like the FDA policy of withdrawing growth promoter use in the US. It would be good instead to promote the OIE plan, announced at the last G7, to monitor use in food animals worldwide.

- Livestock traceability: Livestock traceability systems are based upon three basic elements: animal identification; premises identification; and animal movement. Traceability systems are important, effective tools that can be used for animal health, public health and food safety. They can help reduce response time, thereby limiting economic, environmental and social impacts of emergency situations such as disease outbreaks. http://www.inspection.gc.ca/animals/terrestrial-animals/traceability/eng/1300461751002/1300461804752.

- Infrastructure: A chapter on the crucial role of infrastructures is missing. Countries and regions need to invest in roads, waterways, railroads and other efficient, quality transport. Producers must be able to transport their produce to cities and other markets from their remote production areas.

- Agricultural education and extension services need to support farmers in their transition towards more sustainable agricultural systems.

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?
Chapter 4 is quite useful in demonstrating the complexity, the synergies, trade-offs and variety of outcomes.

The section outlining the different challenge and potential recommendations is useful but we would recommend the following:

- make nutrition and health a separate section (currently mixed with animal welfare)
- under that section clearly make recommendations to address hunger and malnutrition, including the key micronutrients provided by animal-source foods, so it is not mixed with issues of NCDs.
- make animal health and welfare a separate section

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

We appreciate the case-studies presented in the boxes, particularly those on sustainable intensification (Box 2), food sovereignty (Box 3), and Deforestation (Box 13). We believe that this critical review of the pros and cons is appropriate as it demonstrates that there is not one policy or formula suitable in all situations.

PSM supports the contributions of case-studies submitted by the dairy sector for inclusion in the boxes. Please refer to the above comments above related to the Dairy Sustainability Framework.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

PSM notes that sections 3.1, 3.2 and 3.3 are written with a negative prism. It would be important to give a more neutral view and highlight also the benefits provided by the sector to many farmers, rural economy and landscape development. For instance, it is important to note that the livestock sector provides opportunities for farming families, and in particular women farmers, to increase their income. The report states accurately in its introduction that the livestock and dairy sectors help to sustain the lives of people and communities across the world and is a major contributor to the sustainability of rural communities throughout the world, in both developing and developed countries. A viable livestock sector contributes to local, regional, and national economies.

PSM would encourage the authors to look at the role of women in livestock production systems. Case studies point that women are actually the caretaker of herds in many parts of the world and manage for the daily nutrition needs of the animals and the family (also in 3.1.2). Further exploration of the role of women in livestock as it relates to the sustainable development goals would be a welcome addition to this document.
9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

PSM incorporates all actors along the agri-food value chain and supports the notion that the upstream and downstream sectors all influence through their investments the sustainability of agricultural food systems. The barriers from one sector to another are also less clearly defined. For instance, nutrition and health are no longer only the attributes of food processors and retailers as we look to nutrition-sensitive agriculture strategies where crops can be improved to be more nutritious from the onset.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

The report would greatly benefit from a brief review of public and private investments in the livestock sector. For the public sector, it seems that public investment has not been increasing, despite increases in livestock’s contribution to agricultural GDP. IFPRI/ASTI demonstrated the impact of investment in agriculture research on overall economic development. Incentivising good practices is fundamental for farmers and all actors along the agri-food supply chain.

For the livestock sector more precisely, the report could look at successful public, private, or public-private interventions on improvement of animal production systems, animal management practices and animal feed and breeding improvements. The area of greatest need is access to extension services.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Data gaps include:

- Measurement of a product’s environmental footprint in relation to its nutritional value
- Protein quality, i.e. amino acid composition and digestibility
- Daily provisioning of nutrient dense foods
- Data related to the value of agriculture to the wider social network. What if there were no livestock?

12. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Omissions:
• The water footprint of livestock systems
• Role of institutional building in towards SAD and FSN
• Modeling resource efficiency for global productivity gains to meet protein, macro and micro nutrient needs
• Nutrient cycling potential of animals and the role of manure to offset imported nitrogen to watersheds.

Under-represented:
• Livestock comfort and welfare
• Importance of healthy animals on many different outcomes (health, productivity, sustainability, farmers’ livelihoods, welfare)
• Prudent uses of antibiotics are necessary in animal husbandry in order to take care of animal welfare, avoid chronically infected animals, and have a sustainable animal husbandry. Refer to OIE responsible use chapter 6.9 of the OIE terrestrial code. http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_antibio_use.htm
• Refer to OIE role in monitoring antibiotic use in food animals worldwide
• Refer to OIE on animal welfare standards
• Industry and research institutions globally are all looking for innovative ways to maximize nutrient returns
• Importance of trade is not clearly outlined as a means to provide access to nutritious food in particular to countries and populations that cannot produce nutrient dense and protein rich foods. This is particularly true for the many emerging economies that do not have a developed livestock sector.

Over-represented:
• Local foods: the report provides too many mentions to this concept. While the PSM supports the supply of nutritious products through the lens of local food habits, preferences, consumption patterns and affordability of the needy, the local production of food is not a necessary solution for many countries, regions or communities. In many regions, local provision would not provide access to affordable, diverse and nutritious foods that support a healthy diet.

Topics not covered appropriately:
• Market consolidation: The report claims that “Three-quarters of food sales in most industrialized countries are now sold through 10 supermarkets, and 90 percent of the global grain trade is undertaken by four agribusiness firms (Murphy et al., 2011). This has drawn critics to highlight the environmental and social implications of extended supply chains designed to achieve year-round provision at the lowest cost.” (section 2.6). The Grain and Feed Trade Association (GAFTA) would like to contest this figure of 90%. According to their data, it is 30% of global grain trade that is managed by four companies. Governments would be very concerned if 90% of trade was undertaken by such a small number of private sector actors.
Nutrition: The report currently suggests a link between higher ASF consumption, over-nutrition and chronic disease. The science on this remains uncertain. The discussions on fat and cholesterol (butter and eggs) illustrate very well that correlation does not mean causation. In the nutrition sections, it seems to us that concerns regarding malnutrition should be well differentiated from those on NCDs.

60. Susan Bragdon, Quaker United Nations Office

The Quaker United Nations Office would like to congratulate the Expert Panel on the immense amount of work done this far to bring these complex issues together in one piece.

We appreciate especially the even-handed approach used when discussing sustainability concerns related to livestock production, recognizing that the pillar of food stability requires that factors associated with livestock production such as GHG emissions, water pollution and agrobiodiversity loss be taken into consideration in FSN policy dialogues.

We appreciate also the attention paid to pasture-based livestock, pastoral and mixed agricultural systems, of which the majority of the one billion people involved in livestock production manage. These less resource-intensive systems contribute to rural livelihoods and promote FSN worldwide.

One suggestion is to include some analysis of the volume of crops currently being diverted to animal feed, as well as projections, and the caloric and nutritional value of these crops relative to the meat and animal products derived from them. After reading the context section the reader may be left wondering, for example, how much feed is required to produce the 13% of total calories derived from meat and animal products (pp.8). If data is unavailable (as suggested on pp.25), this might be highlighted upfront.

We suggest that projections for how much food production will need to increase by 2050 (pp.24) may be more modest if national policies are in place to promote traditional / local food cultures and nutrition education. Increased meat and animal product consumption may not be an inevitability, particularly in light of recent health concerns associated with meat-intensive diets.

Additionally, it would be helpful to visualize the nutritional breakdown of the non-meat and animal product dietary proteins we consume. The reader may be left wondering if the 72% of dietary protein we consume (the total less the 28% of meat and animal products) is sufficient for healthy diets, physical and cognitive development and for combating micronutrient deficiencies (pp.17, 28).

Another suggestion would be to differentiate between pasture-based livestock and pastoral systems and intensive livestock systems (typology presented pp. 32) according to the demographics involved in each, their relative size and contributions to GHG emissions, and their contributions to rural livelihoods. This information may help policy makers supporting sustainable livestock sectors determine appropriately differentiated policies. For example, and depending on the context, it may be appropriate to provide small-scale pastoralists with additional incentives to produce a diversity of breeds while taxing large-scale industrial producers relative to their emissions.

Lastly, we caution against attributing food price volatility to increased market supply (pp. 9). The relationship between food prices, agricultural trade and financial speculation in grain commodity pricing is complex and highly contentious. We acknowledge the recognition that price volatility disproportionately affects poor farmers and consumers in terms of accessibility (pp.50), and that public stockholdings may be one tool for mitigating these affects (pp. 15, HLPE 2011).
Once again, we acknowledge the Expert Panel for their dedicated work thus far. The finalized document will surely contribute to creating a common understandings the role of sustainable livestock production in achieving the SDGs and in particular, FSN.

Thank you

61. Auréline Doreau, Ingénieurs Sans Frontières France, France

1) The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

2) The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

L'idée de condenser beaucoup d'éléments dans ce rapport donne une idée de patchwork plutôt que de pensée complexe articulant différentes thématiques.

3) The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Les systèmes d'élevage sont identifiés par une catégorie de plus que le dernier rapport de la FAO( les commercial ranchers)... quel intérêt? Quels systèmes français par exemple rentreraient dans cette catégorie : ceux du massif central? On déplore la précision chiffrée ou qualifiée qui permettent d'identifier selon cette grille les élevages des différentes régions du monde. Une carte serait fortement bienvenue pour préciser cela.... Par ailleurs, les deux systèmes agricoles identifiés, intensive crop farming et smallholder systems, ne couvrent clairement pas l'ensemble des systèmes agricoles mondiaux (quid de la polyculture élevage avec ruminants sur pâture? Identification des zones de grandes cultures sèches ou irriguée?). De plus, un élevage peut-être compris dans les deux systèmes (type exemples beaucerons) : à quoi sert alors cette classification? Quels liens entre les 4 catégories d'élevage précédemment cités dans ces systèmes de production ?

4) The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

5) The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?
6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

11) The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

12) Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

A) Dans les biofuels, le biogaz (méthanisation) est-il comptabilisé?

De manière générale, le texte ne comprend pas de réflexion sur le potentiel (éventuellement dangereux à grandes échelles*) de méthanisation via les excréments des animaux.

*comprend:
- questionnement autour de la restitution de la matière organique aux sols (CH4 volatilisé, que reste-t-il dans les digestats restitués aux sols agricoles)?
- "nourrir" les digesteurs suppose souvent grands volumes de matières biologiques à transformer.

B) de façon générale, les incidences culturelles comme l'identification de terroirs ou de paysages spécifiques, ressort peu dans le document. Or, elles peuvent avoir des conséquences sur, par exemple, le maintien de l'élevage dans des zones en déprise agricole (au moins dans les pays du Nord).

62. Stéphane Ingrand, INRA, France

The report is very interesting with many useful figures.

However, it is very long and no easy to read, with some repetitions
There is no mention of aquaculture and more generally on seafood. They could play a key role in feeding the world, and in thinking the role of livestock and crops in FSN

- p17, l51: add the recent OMS report?
- p7, l10: what does 'adequate' means? Safe and healthy should be sufficient

I am not very convinced by Figure 1 (conceptual framework). I made a proposition in the attached file.


Kind regards

63. Khaled Al-talafih, Jordan
Committee on World Food Security - High Level Panel of Experts on “Food Security and Nutrition Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock”
The report is very important and comprehensive, with some comments:

It is very important to deal with the matter according to each country, for example, in the developing countries such as my country Jordan, the main food loss and waste in:

- Poor quality packages which provide little or no protection during handling, transport and storage which lead to mechanical damage.
- Delays in marketing without proper storage.
- Buy more food when the price is low which lead to more loss of food.
- It is very important also to take the measures in awareness to consumer (Lectures, media,...) about the importance of proper consumption by buying their need not more than that and learn them that this will lead to increase the price. The proper way of consumption lead to decrease the cost for family, more health for human (fresh) to increase knowledge and changed behaviors which provide the food to other people in the same country or other country.
- The change in nutrition habits of consumers is very important in reducing the food loss and reach to healthy food.
- The cooperation between the countries in food issues.
- Climate change is very important in food production.

Thank you very much

Khaled Al-talafih
Amman- Jordan

64. Peggy Pascal, ACF, France
Commentaires d’ACF sur le rapport HLPE
ACF s’associe aux commentaires apportés par le CSM. Nous pensons que le rapport doit être repensé en profondeur. Ce qui semble être considéré comme des hypothèses de base (comme l’approche « productiviste » qui légitimiste le recours à l’agriculture industrielle (mais durable) comme la seule voie possible, doit être reconsidéré. Ainsi, nous avons sélectionné les questions qui nous permettaient de donner les commentaires nécessaires à une restructuration de l’argumentaire sans aller dans le détail de l’articulation des chapitres ou encore des logiques internes aux chapitres.

6. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

7. Le problème est que le rapport essaie de traiter les deux et du coup, reste assez superficiel dans la réflexion. On a du mal à percevoir les grandes forces qui ont mené à une évolution aussi rapide du secteur de l’élevage. Le rapport ne pose pas les conditions d’un débat de fond à propos de la crise à laquelle sont confrontées les communautés de pasteurs, ni aucune analyse politique des facteurs qui affectent de manière négative leurs moyens d’existence et leur production. Aucune mention par exemple du poids des corporations de la viande, qui sont pourtant très puissantes et très organisées et qui parviennent à influencer les normes et standards mais aussi, plus généralement à freiner un changement de modèle (vers moins de viande / de meilleure qualité).

8. 2) The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

9. ACf response 1

10.

11. Le cadre conceptuel du rapport a tendance à réduire le secteur de l'élevage comme étant une entité plutôt homogène. L’impact de ce secteur est décrit dans sa globalité en montrant le manque de durabilité de gestion des ressources naturelles, les risques sanitaires et sur la santé. Cependant, peut-on rester dans une vision aussi superficielle des impacts négatifs de l’élevage ? Est-ce l’activité d’élevage qui est problématique ou certains des modèles d’élevage ? Tous les systèmes d’élevage ne contribuent pas de la même façon à la sécurité alimentaires des plus pauvres, et aux émissions de gaz a effet de serre. Tous les systèmes d’élevage n’entraînent pas une augmentation massive de la production d ‘aliments pour bétail ou des politiques d’accaparement de terres. Près de 80% de la surface agricole est destinée à l’élevage (patures et productions de nourriture), ce chiffre est suffisamment important pour qu’il soit mentionné, qu’une analyse soit faite en fonction des différents modeles de production et que les impacts soient présentés.

12.

13. Il serait important que le rapport face aussi états des systèmes d’élevage vertueux et mette en avant des exemples concrets de pratiques durables en soulignant quels ont été les facteurs de réussites / les leviers notamment politiques et législatifs qui sont quasiment passés sous silence dans ce rapport.
14. Le rapport présente une analyse hasardeuse et simpliste des causes de la malnutrition (en partie sur les liens entre consommation de viande de type industriels et surnutrition). Pourtant, ces liens sont aujourd’hui documentés, on sait que la multiplication des fast food a bas prix avec des produits gras et peu riches sur le plan nutritionnel ont des conséquences catastrophiques sur les populations (à la fois obésité et carences en nutriments). Encore, une fois, les aspects législatifs et l’influence des lobbys de l’agro-alimentaire ne peuvent absolument pas être passés sous silence.

15. Enfin, le rapport passe sous silence les nouveaux mouvements d’éleveurs ou de consommateurs qui revendiquent le droit de pouvoir d’opter pour une production et une alimentation saine, abordable et accessible et transparente.

17. 3) The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Il serait intéressant de pousser un peu plus la réflexion et voir comment les intérêts de ces différents modèles sont représentés dans les politiques publiques et dans la législation.

4) The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

Please consider referring to the recent paper of Wezel et al. (2015)93 that reviews the concept of sustainable intensification along with other concepts such as agroecological and ecological intensification.

19. 5) The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

20. Le rapport doit impérativement recentrer son propos sur la sécurité alimentaire et aborder les freins au développement d’une agriculture durable et de l’élevage. Le biais productiviste du rapport est très gênant. Faut-il rappeler une fois encore que nous produisons suffisamment pour nourrir la planète, que la faim est avant tout un problème d’accès que de quantité ?. L’enjeu n’est pas de produire plus au global mais de mieux stocker, gérer mais surtout partager cette nourriture. Les exploitations familiales, en particulier les petits agriculteurs et les

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producteurs d’aliments à petite échelle, fournissent 70 % de l’alimentation et reste de loin le premier employer. Le défi de nourrir une population mondiale croissante doit donc se baser en premier lieu sur la centralité des petits exploitants, comme l’a reconnu le Cadre stratégique du CSA (GSF).

21. Les petits agriculteurs sont présentés de façon assez caricaturale, comme étant peu efficient, plusieurs rapports montrent le contraire. » *While large-scale farms tend to be more efficient in their use of resources – of which they have more than small-scale “farms (...)”* (ligne 11, p 65)

22. Ainsi, le fait que le droit à l’alimentation en particulier (mais plus largement les droits humains) ne soit absolument jamais mentionné dans le rapport est assez édifiant. C’est pourtant un pilier du CSA.

23. Enfin, on a du mal a comprendre que les concepts d’agro-écologie et de souveraineté alimentaire soit relayé au derniers plans. La souveraineté alimentaire étant présenté comme un concept théorique et l’agro-écologie n’étant mentionnée que deux fois dans le texte. (page 16, ligne 10 and page 19)

24.

25. 11) The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

26. Impact des systèmes de productions sur la nutrition

27. 12) Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Le rapport passe sous silence les nouveaux mouvements d’éleveurs ou de consommateurs qui revendiquent le droit de pouvoir d’opter pour une production et une alimentation saine, abordable et accessible et transparente.

- Les liens entre gestion de l’eau et élevage doivent être plus détaillés .
- Les liens entre certains types d’élevage et les conflits / déplacements forcés de population ou insécurité pour les plus faibles sont trop peu abordés
- Le pouvoir du système industriel et des lobbys à tirer les prix vers le bas et à créer une demande croissante sur le marché est complètement absent du rapport, bien que l’industrie joue un rôle central dans la prise de décisions concernant le futur du secteur de l’élevage. Alors que 10 entreprises dirigent la totalité de la filière viande mondiale, il semble inacceptable de ne pas du tout faire état des enjeux liés au contrôle des marchés et du pouvoir des lobbys.
- Enfin la question des droits humains / droits a l’alimentation doit être prise en compte
- L’impact du changement climatique sur les communautés pastorales et sur leur sécurité alimentaire doit être abordée de façon beaucoup plus approfondie. Contrairement a ce que dit le rapport, « les pasteurs ne sont pas ceux qui risques de percevoir les impacts du CC » !!! ils le perçoivent déjà et de plein fouet
Q1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

While totally relevant in its aim to reassociate animals to agriculture, the focus on livestock seems to me (even a livestock scientist) some oversized or too recurrent compared to the more general agricultural stakes for FSN. Like for livestock, a more structured approach of the main stakes around staple food crops (for FSN) and cash crops (for market) and a classification of the main categories of crop systems (from small holder to industrial) could be developed in parallel and analysed in terms of interactions (or not) between these two main Agricultural subsectors (Crop/livestock).

In some way there is a strong "long shadow report" effect for the livestock component where such synthetized approach and global report is still missing for cropping agriculture.

Q2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

The structure is relevant but could be better balanced or declined and articulated between "primary production" crop agriculture multiple functions and stakes and the livestock agriculture as a "secondary" transformer, adding value to cultivated or natural resources biomasses (grasslands, grains, by products..) and it's own functions/stakes toward sustainability.

A totally lacking aspect in actual and future drivers is the global economy players and the recent and rapid financialisation trend of agriculture that followed the food crisis and that crosses contexts, trends, challenges with many new actor's (pension funds, commodity markets, food equities funds, new private investors etc), raising in many places and the fact that these will probably boost some categories of crop and/or livestock systems and lay behind some others …. Food Commodities are becoming more subject to speculations. New rules or absence of rules questions the sustainability in it's three main pillars. The report should evocate at least these important trends (I'm absolutely not expert, attached a small example more can be found when "googleing" on financialisation, agriculture as key words). Eventually HLPE could sollicitate some specific expertise on the subject to develop around actual trends and further views in link to this specific financial aspect.

The burden of nutrient losses (Nitrogen, phosphorus ..) between livestock and return back crop (e.g >70 million tons N are rejected by animals in their environment, a still small part is recycled in agriculture while more than 80 million tons mineral N is synthesized.... etc). The enormous challenge to better and effectively reconnect cropping systems // livestock systems and recycle in the most efficient way all the wasted nutrients could be more strongly underlined.
As stated in the document, energy use in systems has been crucial for crop and livestock intensification, between renewable and non-renewable energies; food, feeds, fuel, human, animal energy inputs in systems vs NRE uses, the future sustainability is also questioned. See e.g. Vigne M (2014) Environmental assessment of livestock systems with the emergy methodology: Efficiency of extensive livestock systems in harsh environments. Perspective 25. CIRAD Agriculture Research for Development, Paris, France.

The questions of the use efficiency of the different forms of energy in the agricultural systems could be better outlined.

Q3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

In the global agriculture these 4 categories are sufficient for livestock but the weight given to ruminant appears implicitly a little too recurrent while non ruminant (pig, poultry) have known the major development in the last decades. (in 2010 23.109 vs 6.109 en 1960 (Faostat): poultry x5, pigs x2.4, ruminants x1.5) These non ruminant systems are the most efficient but also the highest users and competitors on agricultural primary food products (grains, pulses...).

Another very rapidly growing and highly weighing sector are the fisheries and the intense use of feeds in aquaculture. It is rather poorly evoked in a general way and most of the time considered apart from livestock (aquaculture is cited 1 time in the report, while global aquaculture productions, consuming large amounts of feeds, actually equals bovine meat production ...) see e.g. P. GERBER, C. BRUGÈRE, P. ANKERS 2011 Évolution des productions animales terrestres et aquacoles dans le monde : tendances globales et implications économiques, sociales et environnementales INRA Prod. Anim., 24 (1), 9-22.

These productions (non rum livestock and fish) are great competitors on human food but on the other hand, because of their high value adding capacity, these have a very high training effect on the primary agricultural production and economy in many landscapes. As far as these are also all short cycle production systems that can be rapidly stopped or reboosted, these systems also constitute an important buffer for global FSN. Some consideration could be detailed on these direct and indirect economic effects and global food feed stakes of these components of the livestock sector.

Q4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

Some added reference: beyond global food security the concerns evolve toward, malnutrition and under vs over nutrition see IFPRI (International Food Policy Research Institute. 2015. Global Nutrition Report 2015: Actions and Accountability to Advance Nutrition and Sustainable Development. Washington, DC. Also, more and more evidence based papers address the poor effect of agricultural development (crop or livestock) on malnutrition...

Beyond global FSN It would be useful to deepen and actualise on such evolving malnutrition concerns

Q5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

Again the shift in the investor's profile, the financial challenges, and the observed huge investment in high technologies like precision agric, food E-commerce, water, drones/robotics, land buying, would probably merit some particular attention (see e.g. http://www.foodtechconnect.com/2015/08/14/agtech-funding-explodes-2b-invested-first-half-2015/)

Financial capacities of emerging actors could or definitely will, deepen the gap between industrial and family household. How could some SWOT be developed on the compared and real future strengths, opportunities for rural agricultural (incl livestock) development.

Facing the rapid urbanisation of populations, the loss of cultural link to rural values and the sometimes growing idea (among policy makers and private investors) and sometimes consumers that (only) large highly industrialised and integrated systems using latest technologies will feed the world, some more argued consideration and balanced views on the real actual weight of family households (see FAO SOFA 2014, Innovation in family farming), their skills and local knowledge use to precisely manage at low cost and with parsimonious resource uses a large part of the agricultural production could be further developed

Q6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

The chapter is well structured it conveys to a quite classical enumeration of key issues and a Figure 9 Decision making approach: the response cycle for policies to address FSN-SADL that depicts a stylized approach to such decision-making. The figure is a little too simple, the overall context climate change, urbanization, demography could be further developed in it's complexity with societal health and nutrition, animal welfare, organic vs conventional food ... concerns

What also probably misses in such scheme is a representation or a further discussion paragraph on who are the decider's is it a small group or the broad community of actors including the private sector (rarely named or evocated in the document) along to the producers, the transformers, the traders etc in the chains and who are the policy makers: local communities,
Q7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

Regarding livestock interesting examples could be found around the milk developments in Kenya a self sufficient country where a very large part of the market is informal (IIri has made a lot of survey and syntheses on this), or better in India a leading country in world milk production and it's White Revolution structuring around BAIF millions of producers managing low performance and highly recycling cows fed mainly with agricultural by products (see e.g. BAIF http://www.baif.org.in/pdf/Dairy_Husbandary.pdf) ... Summarised examples could be solicited among these institutions

Q8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

Recent example of Vietnam milk development and comparison of indicators between mega farm and small holder milk farm in the NRA Revalter project is highly interesting (see and eventually contact http://www.futurelivestock.net/)

Q9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

The role is effectively essential but also controversial in its effects regarding sustainability. high quality and safety standards policy and low prices competition in the retailers/consumers distribution sector favours upstream integration of large feed and agrifood providers it contributes to FSN and to the economic pillar of sustainability the environmental and in particular the social pillar are more questionable … examples can be found in all production sub sector (cereals, soya, oil, livestock, fish, vegetables) . Should be effectively something interesting to discuss more here

Q10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Facing climate and environmental concerns, Carbon markets potentials, Ecosystem services retribution as well as concepts like Social Responsibility of the Enterprises, Social Business etc … emerging in the private sector, what could be a future sustainable agriculture associating such tools and initiatives
Q11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Regarding animal agriculture there appear very huge gaps between highly developed world and the rest on basic country, region, systems data’s. First on real Animal existing numbers (e.g. figures on animal numbers in a country like Niger vary between 10 and 40 millions…. ) and on the actualised productivity parameters in smallholder systems To address environmental questions, efficiency gaps closures, self-sufficiency foresights, at landscapes, regional or national level national actualised and detailed accounting figures are highly needed

66. Andrea Goncalves, The Brooke, United Kingdom

General Comments

1. The Brooke congratulates the HLPE project team for drafting a very comprehensive V0 draft of the Report: Sustainable agricultural development for food security and nutrition, including the role of livestock. This important and timely piece of work has the potential to make a substantial improvement to the food and nutrition security of an estimated 1 billion poor people whose livelihoods depend on livestock.

2. The future report provides a critically important opportunity to reposition livestock, which perform food production and other non-food production functions in the food security and nutrition policy arena. It can do so by ensuring that the full “livestock picture” is represented in the report and the dependencies of millions of marginalised and vulnerable communities on those animals given due attention.

3. The Brooke would like to take this opportunity to offer its perspective as an organisation with over 80 years of experience of dealing with working, non-food production livestock in less developed countries across three continents.

Specific Comments

Representation of non-food production livestock functions

4. Further work is required to expand the report’s current productivist approach into a more comprehensive and complete reflection of the diverse and complementary functions of livestock and of livelihoods strategies prioritised by the poor, in line with available scientific and empirical evidence. The Brooke’s most recent policy report “Invisible Workers: The economic contributions of donkeys, horses and mules to livelihoods” provides an overview of the roles of working animals such as equids as livelihoods assets as defined by DFID in its Livelihoods Framework. The value of those
unrecognised livestock as productive assets needs to be better asserted and addressed in the final report.

5. We propose the inclusion of an analysis of livestock functions such as that of Dorward et al (2005), which will allow for a fuller understanding of the role of livestock in supporting food security and nutrition. These functions include income generation, buffering, saving, insurance and social benefits.

6. We would also like to see more evidence in support of the report’s promotion of increased productivity and intensification as pathways to food security and nutrition. The report rightly acknowledges hunger to be a problem of affordability rather than availability, and therefore attributable to income inequality rather than productive deficiencies and yield gaps. The report needs therefore to explicitly clarify how increased productivity and intensification are thought to enable the world’s hungry to access the food they need but cannot afford. The consequences of the current approach can be policy recommendations that do not respond to the true causes of hunger – acknowledged in the report as consequences of income distribution rather than food availability – and therefore do not make a significant contribution to improved food security and nutrition in the world. There is extensive evidence on this, including by Save the Children, which needs to be considered.

7. The Brooke believes that enabling poor livestock keepers to make better use of their livestock resources though improved husbandry, suitable and accessible animal health and extension services and improved access to markets would be a more appropriate approach to ensuring that livestock delivers on its food security and nutrition potential in developing countries.

8. We also believe that the current reference to draught power is limitative and does not reflect the value and use of this by hundreds of millions of people as part of their income generating activities. For example, on page 18, the report refers to [draught] power as a by-product of livestock keeping. As the Civil Society Mechanism also highlights in their submission under point 6, traction and transport functions of livestock are absolutely fundamental to the food security of poor livestock keepers.

9. Working horses, donkeys and mules alone support the livelihoods of an estimated 600 million people in the developing world (MacKenna 2007), not taking into account other working livestock species such as camels, oxen and llamas. Their draught power is the very reason working animals, such as equids, are kept and very much their intended function, as opposed to being a by-product of livestock rearing. Their contributions to individual livelihoods and national economies are significant, yet insufficiently assessed and quantified, as acknowledged by the series of IGAD reports published between 2010 and 2013 on the contributions of livestock to the economies of IGAD member states (including Behnke 2010, Behnke and Muthami 2011, Behnke and Nakirya 2012, ICPALD 2013), and more recently in the Brooke’s Invisible Workers report.
10. A fuller explanation of the role of non-food production functions of livestock such as working animals needs to be included so as to provide a comprehensive and detailed overview of the role of those animals for individual and national economies, not only in agriculture but also in the construction industry (for example brick kilns) which relates to the importance of livestock in urban settings.

11. In addition, currently unexplored links in food production value chains will be better understood (for example the use of draught power in transporting feed and water for food producing livestock, transport of goods to and from market and as an input in crop production).

Women’s decision-making power in livestock keeping

12. On page 47, the report highlights gender inequality in decision-making around livestock keeping, a general statement for which some evidence does indeed exist. However, in the case of working animals, research carried out with women in India, Pakistan, Kenya and Ethiopia showed that women do in fact play a significant role in keeping and using large livestock such as donkeys, horses and mules and crucially, that they do on the whole have significant decision-making power on their purchase, use and husbandry methods (Valette 2014).

13. While the report raises pertinent questions around livestock as a pathway out of poverty as opposed to an expression of it, our research shows that women in developing countries prioritise the ownership and use of working animals as a strategy for income generation, relief from domestic burdens and increased status and recognition within their communities. The report should therefore reflect the priorities of poor livestock keepers, both men and women, and enable them to make the most of their animal resources which are a crucial part of their livelihoods strategies.

Improved animal welfare as a livelihoods strategy

14. The Brooke notes with concern the view in the report that animal welfare is an area of controversy, on which global consensus is deemed unlikely (pg. 58, pg. 83). In particular, the assertion that producers in developing countries lack the resources to improve animal welfare and that poor and vulnerable consumers lack the means to afford high-welfare animal food products, offers an incomplete picture of the benefits that improved animal welfare for the livelihoods of poor livestock keepers. Valette (2015) shows both the detrimental effects of poor animal welfare on the livestock owners’ and keepers’ income generation capabilities, as well as illustrating how welfare improvements can bring tangible benefits in enhancing the efficiency and performance of working animals.

15. The Brooke works with national governments, service providers and local communities to improve animal welfare knowledge and practices, as well as helping to put in place suitable and accessible animal health and extension services. This experience on the ground shows us that while challenges do exist, improved animal welfare is both accepted and shown to be effective as a means of sustaining livelihoods.
Global animal welfare standards

16. In response to the statement on page 58 of the report that consensus on global animal welfare standards is difficult to develop, The Brooke would like to commend the OIE (World Organisation for Animal Health) on its important work and clear success in developing precisely such global standards (OIE Terrestrial Code, 2015), which are of crucial significance for the food security and nutrition architecture. OIE global welfare standards cover species such as beef and dairy cattle and broiler chickens. We are especially grateful for the OIE’s current efforts to develop Standards for the Welfare of Working Equids, which we hope to see adopted at the OIE General Session in May 2016. We hope that the OIE’s recognition of the role and welfare needs of working animals will encourage the HLPE project team to adopt a broader, more inclusive view of livestock functions, including traction and transport and of the role of animal welfare in sustaining livelihoods and achieving food security and nutrition.

References:


67. Mauro Fioretti, Associazione Italiana Allevatori (A.I.A.), Italia

Comments and answers on the V0 draft of the Report: Sustainable agricultural development for food security and nutrition, including the role of livestock

Mauro Fioretti, Senior Expert, Associazione Italiana Allevatori (A.I.A.)

We congratulate the HLPE project team for the efforts in producing the document. The report tackles a various range of issues in food security and nutrition and underlines quite rightly the role of livestock productions.

Question 1. While providing many reasonable questions on how to incorporate several technologies and approaches to enhance the management and production of agricultural systems, it seems not to offer enough solutions on how it should be done. We recognise the important role played by meat, milk and other animal products in contributing to a balanced diet (page 17) filling up the gaps of a lack of micronutrients in vegetarians diets.

Question 2. The report focuses on fostering agriculture in developing countries but it misses to relate to the fact that production systems are interlinked globally as security and nutrition are a global issue. We acknowledge a deeper focus on smallholder farmers systems, but the role of cooperatives should be stressed as a potential factor of social cohesion and economic sustainability.

Question 3. The use of four broad classes, while useful, could not be absolutely embracing peculiar system like, for example, cooperatives.

Question 4. We are not aware of other reports, but we consider the report quite exhaustive.

Question 5. A further analysis of already existing technical solutions could be envisaged: animal welfare, genomics, mitigation of greenhouse gas emissions, traceability.
Question 6. We acknowledge that responses should be diversified to fit different challenges. We find that (page 66) health and animal welfare should be treated separately.

Question 7. We appreciate the case studies presented in chapter 4.

Question 8. It would be important to underline the positive roles played by agricultural cooperatives.

Question 9. We consider of major importance the link between upstream and downstream sectors also for the increased role played by the consumer in having the right to know the overall product value chain.

Question 10. We believe that livestock production should have a focus role in politics and that incentives should be considered.

Question 11. The important role played by livestock breeders should be better recognized

Question 12. We believe that the report provides comprehensive view of sustainable agricultural development with a few major challenges.

68. Cynthia Schuck, Brazilian Vegetarian Society, Brazil

Dear members of the High Level Panel of Experts (HLPE) of the Committee on World Food Security,

Please find below our comments on the V0 draft of the study: “Sustainable agricultural development for food security and nutrition, including the role of livestock”. We have organized them in two sections: “general comments”, which address the main questions proposed in the report, and “specific comments”, which address specific sections and paragraphs. The latter were chosen as representative of similar paragraphs and information put forward in several parts of the report.

We hope these suggestions are useful, and look forward to reading the new version.

Yours sincerely,

Dr. Cynthia Schuck, PhD, Oxon – Dept. of Environment, Brazilian Vegetarian Society

Dr. Eric Slywitch, MD – Department of Nutrition, Brazilian Vegetarian Society

**General Comments**

The report asks “How can the goals of FSN be achieved in ways and in systems that conserve natural resources, reduce pollution and adjust to climate change, and respect social and cultural values?”

Indeed, a growing body of evidence shows that the health of humanity is intrinsically linked to the health of the environment.

The environmental crises that are already unfolding are, however, greatly amplified by livestock production. We are 7 billion humans, but raise and slaughter over 70 billion land animals – and an even greater number of aquatic animals – every year for use as food. Livestock production puts enormous pressure on every ecosystem on Earth: in addition to producing solid, liquid and gaseous waste in massive amounts, each animals requires a fraction of land, water and food.
Overall, 75% of the arable land on the planet is used as pasture or for feed production (Foley et al 2011. Solutions for a cultivated planet. Nature 478:337-42). Indeed, as acknowledged in the report, “eating animals rather than edible plants is inefficient in terms of calories harvested per hectare” – leading to inefficient land use, habitat loss and waste of natural resources that could otherwise be used more efficiently. In addition, the major impact of livestock production on soil erosion, desertification, water scarcity and pollution, as well as on greenhouse gas (GHG) emissions, is also well established. Population growth and a rising demand for animal products – projected to increase from 70 to 100% by 2050 (Godfray et al 2010 Food security: the challenge of feeding 9 billion people. Science 327:812-818) – will further intensify existing pressures on climate, land and water. Considering the present use of 75% of arable land for animal agriculture, it becomes clear that food security will not be achieved if animal production increases further to meet the demands of a growing and more affluent population, even if existing yield gaps in agricultural production become narrower. If dietary patterns are left unchecked, over 1 billion hectares of arable land (the size of the entire European continent) would be needed (Tilman et al 2011, PNAS 08:20260–4), with simultaneous increases in greenhouse gas emissions, deforestation, nitrogen, phosphorous and water use. This is an unsustainable scenario.

The potential to mitigate most of the environmental damage associated with the livestock sector is greater through changes in consumption than through supply-side mitigation measures. Reducing the consumption of animal products is central to achieving the sustainable development goals as established in the 2030 Agenda for Sustainable Development of the United Nations. A reduction of livestock consumption would help achieve food security and improved nutrition (Goal 2), healthy lives and well-being for all (Goal 3), availability and sustainable management of water resources (Goal 6), sustainable consumption and production patterns (Goal 12) and combat climate change and its impacts (Goal 13).

In a second part, the report focuses on “how effective policies can be designed and implemented to achieve food security and nutritional goals across and within different countries and societal groups”.

While there has been a number of success stories in low-income countries in tackling under-nutrition, obesity has rapidly become a global epidemic. The sharp increase in prevalence and the associated health risks, co-morbidities and costs have made it a major public health challenge at a global scale.

In Latin America, for example, the nutritional transition has been largely driven by the widespread offer of cheaper food products low in nutritional value and high in energy, sugar, animal fats and proteins, as well as by unregulated advertising practices to which poorer populations are particularly vulnerable. Currently, these food products are often more accessible than fresh fruits and vegetables. A number of African countries are following the same steps. The higher consumption of livestock products, in particular, has been also shown to be an important risk factor for type 2 diabetes, cardiovascular diseases and some cancers, further adding to the burden of malnutrition.

Acknowledgment of the heavy environmental footprint and public health burden of the increasing consumption of livestock products is therefore paramount for the design of effective prevention and mitigation strategies aimed at promoting healthy and sustainable diets. Overall, shifting global demand for animal products is one of the most promising means to promote a healthy, safe and sustainable future for all.
Specific Comments

Report. Page 8, lines 24-30 “the meat and livestock sector is central to sustainable agricultural development. It accounts for 40 percent of global agricultural GDP and makes a huge positive contribution to livelihoods and nutrition including for poor and vulnerable people in the developing world. An estimated 1 billion poor people, many of them women, derive at least part of their livelihood from livestock. It has been one of the fastest growing sectors in global agriculture, due to rapid demand growth in low-income and emerging economies. That trend is set to continue to meet a 70 percent projected increase in demand for livestock products by 2050, almost all of which will be in developing countries”.

Comment. This sentence implies that the livestock sector is central to sustainable agricultural development because of its pervasive influence in today’s societies. However, mitigating hunger, improving nutrition, increasing food security and lessening environmental pressures on natural resources and ecosystems all depend on making the livestock sector less central. A shift towards the substitution of livestock by crops should also have major benefits for those who derive their livelihood from it, as the amount of land and natural resources to raise livestock is considerably higher than that required for the production of similar amounts plant-based protein, or calories harvested, even when compared to highly productive livestock systems.

Report Pg 18. 37-48. Nutritionally, meat and other animal products such as milk and eggs globally provide 13 percent of total calories, 28 percent of dietary protein, and are sources of vitamins and key micronutrients, several of which are not found in plant foods, thus contributing to optimal nutrition. They are valuable in combating malnutrition and a range of nutritional deficiencies in particular for disadvantaged and vulnerable people, including the elderly, lactating mothers and infants. Around two billion people suffer from micronutrient deficiencies including at least half of children worldwide aged 6 months to 5 years (Ahmed et al., 2012). In particular, there is severe and widespread deficiency of iron, zinc, vitamin A, iodine and folate, all of which are present in animal-sourced foods (ASFs). Indeed, ASFs are probably the world’s most important source of nutrient-rich foods in diets and studies show the health benefits of providing ASFs to undernourished populations (Gibson, 2011). Milk consumption is especially associated with increased height, and meat consumption with increased cognitive development.

Comment. That ASF provide only 13% of total calories consumed, while requiring 75% of all arable land of the planet for its production, is illustrative of the unsustainability of animal agriculture, even under putative increases in productivity.

In terms of nutrition, higher levels of ASF consumption now represent a major threat to malnutrition, morbidity and mortality from non-communicable diseases. As acknowledged in the report “many studies show an association between meat consumption (especially red and processed meat) and cardiovascular disease (including strokes), some cancers, diabetes and all cause mortality (Micha et al., 2012; Larsson and Orsini, 2014). There are also plausible mechanisms which livestock products may have a causal role. For example, meat is a source of carcinogens formed during high-temperature cooking of meat and ASFs are sources of saturated fat, associated with higher risk of cardiovascular disease.” These trends should be intensified with the projected urbanization of societies in all continents. Additionally, a large number of nutritional deficiencies are associated to the poor consumption of fruits and vegetables, which is increasingly below recommended levels in high- and low-income countries alike. As recognized by the national dietary guidelines of
several countries, a plant-based diet can be healthy in all stages of life. Iron, zinc, vitamin A, iodine and folate are all present in plant-based food sources. For example, beta-carotene (a source of vitamin A) is abundant in carrots, kale and pumpkins. Beans and other whole grain sources are rich sources of zinc and iron – cheaper than meat. Absorption of these micronutrients can be further increased when soaked in water for some hours before cooking and combined with food sources rich in vitamin C. Dark leafy greens are also rich in iron and calcium. It is only if a population consumes a monotonous plant-based diet that dietary bioavailability of micronutrients such as iron and zinc can be low. Promoting a diversified diet is therefore essential. It is also important to consider that consumption of ASFs is not a guarantee for the absence of nutritional deficiencies. Folic acid, for instance, is destroyed by heat. Therefore, meat is only a good source of folic acid when consumed in its raw form (a practice not recommended considering the increased risk of contamination). Iodine is not synthetized by animals. Instead, it needs to be supplied to livestock when not naturally available in the region where it is raised. Indeed, a number of epidemiological studies show that micronutrient deficiencies are widespread in societies with meat-rich diets. Milk consumption can be especially detrimental in populations characterized by a high prevalence of lactose intolerance, as is the case in many Asian and African countries.

Report Pg. 26, lines6-9. “For this increase in access to animal-sourced foods, livestock numbers need to increase, but so too will the productivity of these animals, the latter being particularly important if natural resources (particularly water) are to be used wisely, and environmental pressures and greenhouse gas emissions are to be mitigated”. Report Pg. 43, 31-35. “Globally, increases in livestock productivity in the recent past have been driven mostly by scientific and technological developments in breeding, nutrition/feeding and animal health. However, there is still a big yield gap to be addressed that holds the potential to increase production and efficiency in a sustainable way”.

Comment. Proposals aimed at curbing the negative effects of livestock production have focused predominantly on the intensification of the sector, particularly the intensification of animal farming systems. The cost-effectiveness of these options relative to demand-side mitigation policies is, however, often ignored. Due to the low energy efficiency typical of meat, egg and dairy production, large areas (many of which high-grade arable land) are used inefficiently to produce feed for animals raised intensively. Water and fertilizer are similarly wasted in large volumes. Intensive animal farming is also associated with high levels of water and soil pollution. The technical and logistic costs of existing solutions to mitigate these and other environmental by-products of animal farming are often prohibitive to small farmers.

As suggested in the report, many of the costs of intensive animal farming systems are transferred to animals. Productivity gains often stem from the selection and manufacturing of fast-growing and/or highly productive breeds. A common outcome of this process is a high incidence of bone and joint disorders, among other anatomical and physiological diseases associated with chronic pain. Other means to increase productivity also include reducing the amount of feed per animal, age at slaughter and the confinement of animals in high densities, in an environment that prevents them from fulfilling basic behavioral, physiological and psychological needs. Palliative measures (such as the extraction of teeth, horns, tails and beaks) to prevent physical harm and mutilation as a by-product of chronic stress are commonly employed. Poor welfare conditions also increase susceptibility to diseases – routinely managed with the use of antibiotics in large amounts.
Productivity gains at the cost of animal welfare goes against the idea – put forth in the report – that “Animal welfare is increasingly recognised as an important issue, and as a characteristic of sustainable agricultural development (Reisch et al., 2013)”. Moreover, as pointed out in the report “Improvements in efficiency may not be sufficient to close the disconnect between increasing scarcity of resources and rising demands for ASF. In Sweden, for example, GHG per kg of chicken fell by 22 percent between 1990 and 2005, but consumption increased by 180 percent during the same period, with a resultant total emissions increase of 150 percent (Cederberg et al., 2009)”. Indeed, productivity gains are often accompanied by falling prices and subsequent increases in demand, which can partially or fully override environmental savings achieved.

Report Pg.50. 24-25. Accessibility of ASF, including fish (HLPE, 2014a), is a major determinant of ensuring nutrition security.

Comment. If not restricted to a few rural, isolated or pastoral societies, this conclusion contradicts several of the arguments put forward in previous sections, which acknowledge that livestock “contributes to many nutrition, health, social and environmental problems”.

We hope these comments are useful in tailoring the report.

With best regards

Dr. Cynthia Schuck, PhD, Oxon – Dept. of Environment, Braz. Vegetarian Society

Dr. Eric Slywitch, MD – Department of Nutrition, Brazilian Vegetarian Society

69. Santiago Carralero, YURTA Association, Spain

Dear all, I hope that my contribution can be somehow useful for improving the final result. In this my contribution I want to highlight some points related to pastoralism and education and referring to the definition framework.

- **Demographic pressure** represents a challenge and a growing problem. Economics teach us that as any animal specie, humans depend on natural resources and these natural resources are limited. Our capacity of “creating” food sources from these natural resources is also limited, even with the assistance of the lastest technology. Of course, there is still much left that we can do to reduce loss and waste, both by the shortening of the long segment existing between producers and consumers, thus favouring the food sovereignty by supporting the grass-root projects and the small-holders food producers, and for the adoption of technological, logistical and educational improvements. Anycase a further demographic pressure will bring unwanted environmental consequences and these consequences will result in a higher risk, regarding the current global conflictual phenomena of the uneven food access: occurrence of famines, hunger crisis, and subsequent forced migrations.

- In this super-competitive and super-specialized world, it is very important not to lose the global perspective, since we live in a globalized world. Furthermore, must be considered the
inclusion of some “global experts” on the expert teams when treating these transcendent
issues. Such “global experts” should combine and take into account different and diverse
aspects of the problem, which usually operate interacting with each other. Global food
production is better understood as a permanent collateral issue, since it impacts directly on
the natural resources management, guiding the environment policy and inspiring an specific
orientation on the conservation of the biocultural diversity. The contribution of
anthropology, which is exempted a priori of any partisan political compromise, is based on
exhaustive field-work campaigns, carried out to identify the root causes of the raised issue.
Unlike classic anthropology, contemporary anthropology considers that the extra value added
by a historical approach is crucial to analyze the social trends in terms of cross-border
historical processes.

- In reference to the extensive pastoral systems, a greater intensiveness on the traditional
mobile pastoralism generally leads to overgrazing and more soil erosion, due to a lesser
mobility of the herds and a loss of vegetation regeneration ability. In the other hand it is also
very important, I would say crucial, that the pro-urban pattern of living be overcome, and the
urban model replication in the rural areas dismissed to foster more innovative ways oriented to
re-create “rural ecosystems”, acting at the same time as regional centres of ecological food
production and their native inhabitants as enviromental guardians. In this sense, we need
new models of habitability, in order to banish the wrong myth of the marginal lands.
Pastoralists have managed vast extensions of “marginal lands” for millenia. At present-day,
these misnamed “marginal lands” are vital to keep a healthy global environment and to
restrain the harmful effects of the climate change. The principle of the “free, prior and
informed consent (FPIC)” is a great step forward to protect the rights of the indigenous
peoples in their traditional territories. Other alternative is represented by the idea of “co-
management”, by which the indigenous peoples not only consent but also involve themselves
in the projects affecting them, adopting an active and pro-active position. Definitely,
pastoralists and agro- pastoralists have a prime role to play in the future global scenery
of meat and diary products production, and modern technology has the potential to
contribute to improve the green economies of pastoralists. For example, the animal dung,
used for centuries by pastoralists as a source of domestic heating and cooking, could be
transformed in biogas to get a cleaner and more efficient fuel (Bertha Alicia Rivas Lucero and
others, 2012).

- Rather than speaking about SAD (Sustainable Agriculture Development) I suggest to remove
the word “development” from the equation, as it seems a term poiting out a non-stop or
neverending dynamic process. Balanced Agriculture Systems would be a good alternative in this
sense, avoiding as well the controversial term “sustainable”. Whereas “sustainability” sounds
like a goal difficult to be consensual, “balanced” is perceived as a trend that it has to cope
with a diversity of needs negotiated in advance. In the chapter of definitions and “ideology”
I would add the need of a new analysis to define “poverty” properly, clarifying what are
the criteria used to describe it, how “poverty” itself is considered and according to which
parameters, specially when urban-rural dichotomy is put on the table.

- I agree that the idea of Sustainable intensification is contradictory and could disguise attempts
for undertaking renewed efforts to colonize rural areas geared to the natural resource
depletion. Again the word “sustainable” appear to be controversial, while “intensification”
remains eerily undefined. I agree with the report about the importance of the livestock
sector at the present moment. **Meat production** related to the mobile pastoral systems could be increased in different ways. In line with the recent recommendations given by OMS about the health risk associated to the processed meat intake, we glimpse the first timid signs, but with great potential, in relation to the expansion of more “exotic” livestock species, as reindeer and yak, specially in relation to new areas affected by the climate change in North America, Greenland and Siberia. Given the sheer size of the regions in the tundra and taiga ecosystems which can be “naturally” re-converted into grasslands, the introduction and spreading of herds of reindeers and yaks could be an interesting option to generate high-quality meat lots as well as an attractive alternative source of income for the indigenous peoples formerly hunters and seduced by mining. Much more productive than reindeers, yaks offer milk and meat with less fat and more nutritional benefits than other cattle, as demonstrated by scientists and publicized by the pioneering yak-breeders in Alaska and Canada.

- Another important point focuses on the educational models in the primary and high-school education. An internationally assumed programme on “nutritional education” could be useful to fight against obesity and to raise awareness on the reality of waste and loss among the urban people in relation to the daily practices of feeding.

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Arla Foods is a global dairy company and a cooperative owned by dairy farmers in seven countries: Denmark, Sweden, UK, Germany, the Netherlands, Belgium and Luxembourg. Our products are sold under well-known brands in more than 100 countries globally. Arla is the world’s fifth largest dairy company, based on milk intake, and the world’s largest producer of organic dairy products.

Arla Foods is grateful for the opportunity to provide input to the report and congratulate the High Level Panel of Experts to an interesting and multifaceted report. We look forward to coming drafts and continuous opportunities to provide our perspectives on the challenges of sustainable agricultural development for food security and nutrition, including the role of livestock and dairy production in particular.

Arla Foods supports the input provided by the International Dairy Federation and the Private Sector Mechanism.
On an overarching level, we want to stress the importance of dairy in healthy and sustainable diets around the globe. Dairy products provide high quality nutrition to comparatively low price and with relatively low environmental impact. Dairy products offer a nutrient package with essential nutrients in a mix suitable for complementing a balanced diet rich in vegetables, grains, pulses and smaller amounts of high quality protein sources like fish and meats. Thus, dairy can provide valuable nutritional contributions to healthy and sustainable eating patterns to both under- and over nourished populations. This is why dairy is part of dietary recommendations in countries around the world.

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

70. Elin Boll, Arla foods, Denmark

Arla Foods propose to further emphasize and clarify that there is wide range of environmental sustainability performance within all production systems that depends on management practices and skills. This has been stressed and shown e.g. in the FAO report “Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities” (http://www.fao.org/3/i3437e.pdf). Having a too wide classification of livestock systems, discussed under point 3 below, risk missing relevant detail on how to address these challenges and opportunities.

Best practice should be promoted in every production system in order to improve the sustainability. Arla Foods support the approach proposed by the Dairy Sustainability Framework, of regional prioritization of sustainability challenges in close dialogue with stakeholders, and a continuous improvement-approach http://dairysustainabilityframework.org/dsf-membership/membership-commitment/. This global industry initiative can provide an example of how a sector can address the challenges in an ambitious and structured way, avoiding the undesirable one-size-fits-all-approach.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

It is positive the report acknowledges the contribution of essential nutrients from livestock production. ASF are recognized as sources of vitamins and key micronutrients, several of which are not found in plant foods, thus contributing to optimal nutrition.

Arla Foods wants to stress the importance of putting environmental challenges of food production in relation to the contribution of essential nutrients. This is particularly true for milk products, providing a wide range of micro- and macro nutrients to a comparatively low environmental cost in terms of
greenhouse gas emissions (Smedman et al. 2010). However, Arla Foods also want to stress the importance of not simplifying the debate on sustainable diets to single environmental aspects, e.g. climate. Also, it is important to have an approach encompassing diets, rather than comparing single nutrients or individual food items.

Diets are discussed throughout the report but it would add value to have a structured classification of existing diets, in order to identify challenges and opportunities for different ASFs in a dietary context. There is an attempt to classify dietary challenges in Table 1 on page 59, but the table is not transparent enough on background documentation. Also, as the nutritional contribution differs between ASFs, it could add value to the discussion to differentiate between dairy and meat in the discussion on challenges and opportunities from a dietary perspective.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Arla Food recognizes the need for and challenge in simplifying the classification of livestock systems. However, the production system that we represent does not fit any of the proposed categories, i.e. cooperative dairy farmers in North Western Europe with a specialized production, with approximately 80% of the feed grown at the dairy farms or in the region etc. We propose the categories to be diversified more, in order to discuss challenges and opportunities in more relevant detail.

In addition to diversifying the categories, we propose the review the description of the different categories to ensure that the same approach is adopted in describing the system. The text is possibly indicating an underlying preconception of some systems being more desirable than others.

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?
6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Arla food acknowledges the need to include the nutritional value of foods (e.g. protein quality) in measurement of products environmental footprint, both plant- and animal based foods.

12. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.
ASFs are sources of saturated fat, associated with higher risk of cardiovascular disease.”

COMMENT: This sentence needs clarification. Firstly, there is no reference to the statement. Secondly, in a recent systematic review and meta-analysis commissioned by the WHO (de Souza et al., BMJ 2015;351:h3978) it was concluded that the evidence does not support an association of saturated fats with all-cause mortality, coronary heart disease (CHD), CHD mortality, ischemic stroke or diabetes in healthy individuals. In the study it was highlighted that it is of high importance to consider what nutrient that is replacing the saturated fat. For instance, replacement of saturated fats with polyunsaturated fats reduced the risk of CHD, but this did not occur when saturated fats were replaced with monounsaturated fats or carbohydrates. Also, the food source by which saturated fats are provided plays an important role to the health outcome since the composition of saturated fats differs between different food sources. In the paper, dairy is highlighted as one example of a food source, providing specific types of saturated fats, that actually is suggested to be protective against e.g. type 2 diabetes.

Page 59. Table 1.

COMMENT: The table could provide an important synthesis of the complex discussion on challenges, but lack transparency on the background to the classification of challenges and the conclusions presented.

Page 82, row 41-42

“At the same time, more diverse diets higher in plant content would enhance human health outcomes”

COMMENT: This statement needs to be clarified. It seems like it refers to Western dietary patterns and not dietary patterns present in developing countries. The way it is stated now indicates that this is the case globally, which may be misleading.

71. Delanie Kellon, International Dairy Federation, Belgium

IDF greatly appreciates the opportunity to comment on the CFS-HLPE DRAFT V0, Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock.

We would like to express our congratulations to the Project Team members for their excellent work on the content of this first draft. We look forward to the evolution of the report and to supporting the Project Team through the forthcoming comment periods.

General comments:

The V0 draft is a very comprehensive review of sustainable agriculture development and sustainable food systems. This review is supported with empirical evidence (with some exceptions noted below), as well as country-specific and sector-specific case studies, all of which are connected in a logical manner. The Project Group’s efforts are commendable, as the final version of the report has great potential to play a valuable role in the future, both in terms of reference and discourse.

The design and implementation of policies and systems for sustainable food and nutrition systems requires robust, comparative data over time and across counties, therefore there is a clear need to establish a global research network to collect, analyze, and synthesize data on national and global N and P, water flow, and climate smart activities.
### Comments Responding to Questions 1-12

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<td>In general, the report appears to give a balanced view of the environmental and nutritional challenges likely to be faced in the coming periods, and the role of livestock in addressing these challenges.</td>
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<td>It would be useful to further emphasize and clarify that there is a wide range of environmental sustainability performance within all production systems, which depends on management practices and skills. This is emphasized in the FAO report, “Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities” (<a href="http://www.fao.org/3/i3437e.pdf">http://www.fao.org/3/i3437e.pdf</a>). Having too broad of a classification of livestock systems (also discussed under Question 3 below) risks missing relevant</td>
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Best practice that includes environmental protection and management should be promoted in every production system in order to improve sustainability. IDF supports the approach proposed by the Dairy Sustainability Framework, of regional prioritization of sustainability challenges in close dialogue with stakeholders, and a continuous improvement approach [http://dairysustainabilityframework.org/dsf-membership/membership-commitment/](http://dairysustainabilityframework.org/dsf-membership/membership-commitment/). This global industry initiative can provide an example of how a sector can address the challenges in an ambitious and structured way, avoiding the undesirable one-size-fits-all-approach.

We suggest that the report should also take into account and reference the work of the Livestock Environmental Assessment and Performance (LEAP) Partnership [http://www.fao.org/partnerships/leap/en/](http://www.fao.org/partnerships/leap/en/). Through this multi-stakeholder partnership, the livestock sector has been working collaboratively with governments and civil society organizations to improve benchmarking and monitoring of the environmental performance of the sector. Deliverables include guidance documents on the environmental performance of: animal feeds supply chains; large ruminant supply chains; small ruminant supply chains; and poultry supply chains; as well as a global database of GHG emissions related to feed crops; and principles for the assessment of livestock impacts on biodiversity. All of the above are available here: [http://www.fao.org/partnerships/leap/resources/resources/en/](http://www.fao.org/partnerships/leap/resources/resources/en/).

Another multi-stakeholder, collaborative effort that should be
The goal of the Agenda is the sustainable development of the livestock sector to support livelihoods, long-term food security and economic development. The purpose of the Agenda partnership is to inform, guide and catalyze the continuous improvement of livestock sector practices towards more efficient use of natural resources. Land, water, nutrients and greenhouse gas emissions are the initial focus. The Agenda’s focus on improvements in natural resource use efficiency holds great promise for global environmental, social, and economic benefits.

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<th>2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?</th>
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IDF would like to stress the importance of putting environmental challenges of food production in relation to the contribution of essential nutrients. This is particularly true for milk products, which provide a wide range of micro- and macro-nutrients at a comparatively low environmental cost in terms of greenhouse gas emissions (Smedman et al. 2010: Food & Nutrition Research 2010, 54: 5170 - DOI: 10.3402/fnr.v54i0.5170)

It is important not to oversimplify the debate on sustainable diets by focusing on single environmental aspects (e.g. climate). It is also important to use an approach that encompasses diets, rather than comparing single nutrients or individual food items.

Diets are discussed throughout the report but it would add value to have a structured classification of existing diets, in order to identify challenges and opportunities for different ASFs in a dietary context. There is an attempt to classify dietary challenges in Table 1 on page 59, but the table is not transparent enough on background documentation.

The trends are too non-specific for effective action; one needs specific scenarios to highlight hotspots in various parts of the world, whether they are water shortages, lack of biodiversity, overutilization of natural resources, poor efficiency, trade imbalances, etc.

A comparative assessment of the drivers would help to increase clarity regarding the trends.

It would be helpful to add a glossary for
It would be helpful to provide an executive summary with key points.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

IDF recognizes the need for, and challenge in, developing a classification of livestock systems. However, the production systems represented by many of our members do not fit in any of the proposed categories (e.g. cooperative dairy farmers in North Western Europe with a specialized production, with approximately 80% of the feed grown on the dairy farms or in the region). We propose that the categories be diversified in order to discuss challenges and opportunities in more relevant detail.

In addition to diversifying the categories, we propose that the description of the different categories be revised accordingly. The current text could be interpreted as indicating an underlying preconception that some systems are inherently more desirable than others.

It would also be helpful if the categories would continue to be used toward the end of the report. Suggestion: place the comments/arguments/evidence within all the terms and abbreviations.
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<td>The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?</td>
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<td>Yes, expanding on these areas should be useful. The report could also cover the high-level challenges and opportunities around environmental mitigation technologies. For example, there are new greenhouse gas emission mitigation technologies being developed. However, there are still many challenges for these regarding successful development and adoption. The following reference provides more information on this for the livestock sector. Global Research Alliance on Agricultural Greenhouse Gases and Sustainable Agriculture Initiative (SAI) Platform. 2015. 'Reducing Greenhouse Gas Emissions from Livestock: Best</td>
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<td>5.</td>
<td>The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?</td>
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IDF suggests that it be taken into consideration that for developing countries like India, methane mitigation strategies should be cost effective and need to address the socio-economic issues. In India, the National Dairy Development Board (NDDB) has been implementing a nationwide Ration Balancing Program (RBP) by providing grassroots-level advisory services to milk producers to ensure optimum animal feeding commensurate with the animals’ nutrient requirements. This climate change mitigation strategy is one of the components of the World Bank funded National Dairy Plan (2012-13 to 2018-19). Preliminary evidence suggests that this has resulted in a reduction in the cost of milk production, an increased yield, and reduced methane emissions. We suggest that the report could consider this initiative as an illustration of a mitigation strategy. In this context, the Chairman of the NDDB has coined a slogan, “Any solution that ignores livelihood cannot be sustainable”, which may be suitably incorporated in the report.

It is mentioned that the greatest gains could be made from enhancing productivity in developing countries where yield gap analysis indicates the greatest potential exists. However, it should also be considered that improved productivity is often lost in reduced prices of many agricultural commodities including livestock products. This often leads to sharp volatility in income levels for
Manure has immense value in terms of rejuvenating soil fertility thereby improving the mineral content. In the Indian system, manure is recycled as organic fertilizer to increase crop productivity and thereby making more crop residue available to the livestock production system. In the environmental ecosystem, a balance needs to be struck between food and feed production sub-systems. Cohabitation of other species need not be lost sight of as biodiversity should be respected and efforts should be made to improve the sector’s impact on biodiversity whenever possible.

Livestock, particularly dairy animals, in India and other developing countries are fed with food crop by-products (i.e. crop residues and agro-industrial by-products) with very little or no food grains and green fodder. About 50% of the milk produced in India is consumed in the villages after boiling and it does not involve pasteurization, transportation and processing. Most of the manure is stored in solid form, which does not lead to significant production of methane and nitrous oxide. This clearly indicates that this type of milk production system does not compete for land and water resources used for human food production. Thus, the small-holder, mixed-crop livestock/extensive production system can be one of the production systems with the least environmental impact.

A pilot study in this regard on cradle-to-farm gate life cycle assessment conducted by the National Dairy Development Board (NDDB) in Western India shows that the average carbon
footprint of milk production was 1.9 and 2.5 kg CO2-equivalent/kg fat and protein corrected milk for cows and buffaloes, respectively, which is significantly lower than the corresponding values reported by the FAO (2013) for South Asia and, almost similar to that reported for industrialized countries. A research paper on this study has also been accepted for publication in Animal Production Science – a peer reviewed CSIRO (Australia) international journal.

Livestock Traceability is much more than, “an increasingly public and private investment for monitoring compliance with quality, environmental and other product and/or process attributes related to food”, as described in the draft. “Traceability is the ability to follow an item or a group of items - be it animal(s), plant, food product or ingredient - from one point in the supply chain to another, either backwards or forwards. Livestock traceability systems are based upon three basic elements: animal identification; premises identification; and animal movement. Traceability systems are important, effective tools that can be used for many things, including the protection of animal health, public health and food safety. They can help reduce response time, thereby limiting economic, environmental and social impacts of emergency situations such as disease outbreaks.”


The links between social sustainability challenges, economic sustainability, environmental sustainability, health and
animal welfare, policy decision making and actions could be accomplished by livestock traceability. Transparency can only be accomplished with excellent data. Livestock traceability could be an excellent starting point.

Livestock traceability could help, "to narrow the productivity or yield gap between the highest and lowest performers in a region and thus increase agricultural production, including livestock and animal feed production." Technically, mobile telephones could "scale up the well-understood technologies and approaches to improving yields that are massively underused by poor producers. The potential also exists to improve the diets, nutritional status and health of poor and vulnerable people – as well as rebalancing the diets, nutritional status and health of many people in rich and emerging economies."

Suggestion: clarify how political issues impact the projections.

A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

Yes, it seems to be useful and pragmatic.

Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-
documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the tradeoffs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

IDF suggests the inclusion of cases in boxes that provide examples of sustainable and responsible dairy production, as well as the reduction in the use of antibiotics to underpin that this should not be done at the expense of animal health.

We have included a few examples below.

Example 1: Global Dairy Agenda for Action (GDAA) Dairy Sustainability Framework (DSF)

In 2009, the Global Dairy Agenda for Action (GDAA) was launched as a response by the international dairy sector to demonstrate that climate change was a major concern for the sector and acknowledge its responsibility in working to address this issue. The sector committed to reducing GHG emissions through a range of actions commencing with the development of IDF’s common methodology for calculating GHG emissions from milk production and processing (second edition has recently been published):


(http://www.fil-
The Dairy Sustainability Framework (DSF)—a program of the GDAA—was launched in November 2013. The DSF is an international dairy value chain initiative designed to align, connect and progress existing activity whilst providing the framework to channel future additional dairy sector sustainability efforts. The DSF is not a ‘tic-box standard’ but an umbrella resource that focuses the sector on demonstrating continuous improvement under eleven key Sustainability Criteria and Strategic Intents unique to the whole dairy value chain and including environmental, social and economic aspects of sustainability. (http://dairysustainabilityframework.org/)


Example 2: Improving sustainability in the dairy sector


The framework includes:

Enhancing Livelihoods
For the 43,000 Australians employed on farms and in manufacturing by the dairy sector, dairying is their future. It creates jobs for generations and careers for life. By generating $13 billion in economic value, dairying makes a vital contribution to the nation and, in particular, regional communities.

Improving Wellbeing

With a unique natural package of 10 essential nutrients, dairy foods have helped underpin the health and wellbeing of generations of Australians. As an industry, we care deeply for the wellbeing of the community and our animals.

Reducing Environmental Impact

Dairy farmers are responsible stewards of the land. Dairy farmers and manufacturers work hard to reduce waste to landfill, reduce greenhouse gas emissions intensity, and use water wisely. Technology and tenacity underpin our commitment to reduce our impact on the environment.

Example 3: Good animal welfare


Example 4: Prudent uses of antibiotics
The prudent use of antibiotics is necessary in animal husbandry in order to improve animal welfare, avoid chronic infection, and achieve sustainable animal husbandry. Animals that are sick and/or in pain and suffering should be treated in a correct way in order to ensure good animal welfare and avoid the development of chronic infections. At the same time, healthy animals should not be treated with antibiotics as part of a routine or management system, nor should chronically infected animals that are not expected to recover to a healthy state. Both extensive use of broad-spectrum antibiotics and extensive treatment of chronically infected cows will lead to the development of resistant bacteria and is therefore not a sustainable use of medication.


http://www.fil-idf.org/Public/PublicationsPage.php?ID=27121#list

Example 5: Controlling the spread of animal diseases

Animal diseases are transferred mainly by trading live animals. Some diseases are regulated by OIE, EU, or individual countries. Some diseases are enzootic in some countries and absent in others due to regulations, eradication programs, etc. One example is Bovine Virus Diarrhoea (BVD) eradication in the Nordic countries. In Norway, it has been documented that the financial savings generated by this eradication program after 10 years is 130 million NOK (Valle et al., 2005). Other costly diseases like Bovine Digital Dermatitis (BDD), Mycoplasma bovis, and Salmonella could be detrimental when introduced into new herds or new regions by
trading live animals (Radostits et al. 2006). Such diseases are not regulated by governments, OIE or other organizations, and represent a major threat to sustainable animal husbandry and animal welfare in several regions. To achieve sustainable animal production there should be much more regulation and restriction on trading live animals.


<table>
<thead>
<tr>
<th>8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.</th>
</tr>
</thead>
</table>

The following IDF fact sheets provide relevant information that could be taken into account/referenced (available here under the “Milk Production” tab): [http://www.fil-idf.org/Public/ListPage.php?ID=39621](http://www.fil-idf.org/Public/ListPage.php?ID=39621):

Dairying and the Environment (IDF, 2013)
Dairy helps to sustain the lives of people and communities across the world. The industry plays a key role in sustainable rural development by reducing energy use and emissions, protecting land, preserving biodiversity, enhancing waterways, managing waste and enhancing transport efficiency.

Dairying and Sustainability of Rural Areas (IDF, 2013)
Dairy is a major contributor to the sustainability of rural communities throughout the world, in both developing and developed countries. A viable dairy industry contributes to local, regional, and national economies.

40. The Dairy Sustainability Framework (DSF)—a program of the GDAA—includes social aspects of sustainability. ([http://dairysustainabilityframework.org/](http://dairysustainabilityframework.org/))

41. Dairy is uniquely situated to help bring inclusive and transformational economies from inequity and inequality if focused on properly. The sector provides a diversity of employment and alleviates poverty. This is of particular importance to segments of society who are traditionally disadvantaged—small holders, landless laborers and women.

42. The global dairy sector creates millions of jobs, which has the capability to sustain and revitalize rural communities in all corners of the world. This includes the goal of helping women and children thrive, and generations build upon
responsible land stewardship. And world economic, financial and food crises continue to make dairy’s ability to produce nutritious food, both safely and sustainably, key to nutritional security and daily cash flow to the world’s vulnerable populations. We have yet to examine the role women play particularly in livestock production. Many case studies point out that women are actually the caretakers of the heard and manage the daily nutrition needs of the cows and the family. Further exploration of the role of women in livestock as it relates to the sustainable development goals would be a welcome addition to this document.

43. There has been a large focus on the role of agriculture at the production level but less of an emphasis of the economic value of the creation of value chains and its economic impact, and the cost/benefit of producing and providing food to consumers in a country. The ability of a country to develop value chain markets and feed people has a rippling effect through the economy. Livestock, and in particular dairy, is uniquely able to build value chains through the cooperative system.

44. The report includes conclusions that labor related to agriculture is a problem, but it would be interesting to understand labor in context (i.e. in relation to local situations). For example, in the US, the average dairy worker is making $12.10/hour, and the average restaurant waiter is making $10.04/hour. There are many studies that show that when a cow is present, a family’s livable wage increases significantly and wages associated with livestock are higher than in other agriculture sectors.
In the report there are discussions on the mean age of the working population and relating them with structural transformation. There are references of China, Mozambique, Zimbabwe, USA and Kenya, while it may be noted that the average age of India’s main workforce is 35 years (Census 2011, GoI). So, this phenomenon could potentially facilitate structural transformation in the agricultural sector. In addition, there has been a reduction of 7 million cultivators, in 2011 compared to 2001, which also indicates that the Indian agriculture sector is tending towards a phase of structural transformation.

Suggestion: The report should make better reference to rising tensions over land rights between mineral, fossil fuel and agriculture lands.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

The report states that: by 2050, the global contribution of livestock in gross value of agriculture is expected to rise to 39%, from a level of 36% and that this rise in contribution would largely be driven from increased meat production (mostly in developing countries). While this observation is generally valid for the livestock sector, it should be noted that this is not always the case. For example, in India, with a large vegetarian population, the driver for livestock
growth is increased milk production, and not meat production. Indian evidence suggest that (i) Milk accounts for more than 66% of total value of livestock products, and (ii) Growth in milk production which is in excess of 4% per annum is largely contributed by (iii) growth in yields of milch animals and (iv) and an increase in animal population.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Yes, the ones mentioned are key. However, as farmers are under financial pressure in many parts of the world, incentives (not taxation) should be the focus.

48. Additionally, an analysis of public investment in the livestock sector should be included in this report. This is important since public investment in the livestock sector has not been increasing, despite increases in livestock’s contribution to agricultural GDP (for example, in India). In addition to the case studies included in the draft (e.g.,
boxes 9, 15, 16), examples from the dairy sector could also be included, such as the following Indian case study of growth and development of milk production:

India has achieved extraordinary growth in milk production. During the last three decades, milk production has been increasing at a secular rate of 4% per annum and currently stands at 146 Million MT. This growth rate is in excess of growth in human population of the country. As a result, per capita availability of milk has increased to 320 grams in 2014-15 compared to about 120 grams in 1960. This growth in per capita availability in India is higher than world average of about 300 gm. The increased milk availability has contributed in food security and made India self-reliant in milk production. The growth in milk production has been possible due to (i) increase in yield and (ii) increase in number of dairy animals. The improvement in the genetics has also contributed towards increased milk production.

The livestock sector contributes about one-third of gross value of agricultural income in India. It is the single largest agricultural commodity, both in quantity and value terms, and even higher than the combined value of rice and wheat.

Milk production in India is inclusive, geographically spread out and provides livelihood support to millions of small and marginal producers. The study suggests that income from milk contributes about 30% of the family income, which rises to over 50% in case of landless, small and marginal farmers. Studies also indicate that milk production is critical in ensuring food
security and nutrition in those families who are engaged in dairying. The National Dairy Development Board and Government of India are working together to ensure sustainability of milk production in the country (http://www.nddb.org).


51. The authors rightly point out that subsidies have typically been provided for productivity, making farming systems less vulnerable to climate change, and harnessing agriculture to deliver more environmental services. While these are positive uses of subsidies, the agriculture sector as a whole has had a decrease in the level of funding for research and innovation and applied research and extension. We need an increased focus on technology transfer and an increase in funding to support worldwide soil research, and in particular to agriculture, the investment in manure as a resource for soil amendment and fertilizer. We also must factor in that agriculture is the ecosystem regulator of land, air and water in all economies globally and adaptation and mitigation to carbon is not a linear equation as in other
industrial sectors.

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<td><strong>11.</strong> The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?</td>
<td>One key area where there appears to be relevant data gaps that need addressing to improve decision making is measurement of a product's environmental footprint in relation to its nutritional value. The following references provide some examples of the data needed, however, there are still many gaps regarding other environmental factors.</td>
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<tr>
<td></td>
<td>Drewnowski, A. (2014) 'Healthy Diets for a Healthy Planet', The American Journal of Clinical Nutrition <a href="http://ajcn.nutrition.org/content/early/2014/04/30/ajcn.114.088542">http://ajcn.nutrition.org/content/early/2014/04/30/ajcn.114.088542</a></td>
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</table>
The report references different measurements for greenhouse gas emission footprints (per gram or per calorie). Per unit of nutrient density can be a useful measure when optimizing environmental and nutritional outcomes. The following reference may be useful: Doran-Browne, A. et al (2015) Nutrient density as a metric for comparing greenhouse gas emissions from food production, The University of Melbourne.

Indeed, modeling studies are required to provide global (general) scenarios, but more importantly within countries as the solutions /emphasis in countries will differ vastly.

Through the daily provisioning of nutrient dense foods, dairy is essential for reducing hunger, malnutrition and “Hidden hunger”.

The report would also do well to explore protein quality, i.e. amino acid composition and digestibility.

12. Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Nutritional density should be considered while comparing the water footprint of food including dairy and meat.

Mekonnen and Hoekstra 2012 used water use per calories as the unit for comparison. This is problematic because only using calories for comparison can easily lead to a biased and potentially
incorrect conclusion. Because their comparisons did not take into account the nutrients of the food, looking at calories on their own is not comprehensive enough. Take a relevant study as an example: Drewnowski et. al. compared GHGEs per calories produced and found that grains and sweets had lowest GHGEs (per 100 g and 100 kcal) but had high energy density and a low nutrient content. The more nutrient-dense animal products, including meat and dairy, had higher GHGE values per 100 g but much lower values per 100 kcal.


As a way to improve the water footprint of dairy, IDF has developed an ISO 14040-compliant life cycle assessment based water footprint guide (forthcoming 2015). This guide can be used as a working paper to provide relevant water assessment information, and includes two case studies that can be useful for this HLPE with respect to dairy’s water footprint. It is not a surprise that a major water impact of dairy products is caused by feed production, therefore it is important to source feed from less water-stressed areas.

Please provide references for the statement, “Animal products from industrial, feed-based systems are generally more water intensive and generally consume and pollute more ground- and surface-water resources than animal products from grazing or
“ASFs are sources of saturated fat, associated with higher risk of cardiovascular disease.” This sentence needs clarification. Firstly, there is no reference to the statement. Secondly, in a recent systematic review and meta-analysis commissioned by the WHO (de Souza et al., BMJ 2015;351:h3978) it was concluded that the evidence does not support an association of saturated fats with all-cause mortality, coronary heart disease (CHD), CHD mortality, ischemic stroke or diabetes in healthy individuals. In the study it was highlighted that it is of high importance to consider what nutrient is replacing the saturated fat. For instance, replacement of saturated fats with polyunsaturated fats reduced the risk of CHD, but this did not occur when saturated fats were replaced with monounsaturated fats or carbohydrates. Also, the food source by which saturated fats are provided plays an important role to the health outcome since the composition of saturated fats differs between different food sources. In the paper, dairy is highlighted as one example of a food source that provides specific types of saturated fats that are actually suggested to be protective against Type 2 diabetes.

The table could provide an important synthesis of the complex discussion on challenges, but lacks transparency regarding the background/basis of the classification of challenges and the conclusions presented.
<table>
<thead>
<tr>
<th>82</th>
<th>41-42</th>
<th>57.</th>
<th>“At the same time, more diverse diets higher in plant content would enhance human health outcomes.” This statement needs to be clarified. It seems like it refers to Western dietary patterns and not dietary patterns present in developing countries. The way it is stated now indicates that this is the case globally, which may be misleading.</th>
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<tr>
<td>85</td>
<td>51-52</td>
<td>The report is weak in highlighting the significant role that some institutions have been contributing towards SAD and FSN. If institutional engagement is not the scope of the study, then the report could indicate that a separate study may be commissioned to analyze how different institutions have been facilitating SAD &amp; FSN in different countries. In India, the NDDB has done an exemplary work in promoting dairy development in India through an appropriate institutional framework. NDDB has demonstrated that cooperative dairying is a model that can help poor and marginal farmers to organize themselves into an institutional structure that is owned and managed by them. The member producers of these cooperatives receive value addition to their production (<a href="http://www.nddb.org">http://www.nddb.org</a>).</td>
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<tr>
<td>8</td>
<td>17-22</td>
<td>Livestock comfort and welfare should also be given due consideration in the context of increased role the livestock sector is to play in SAD and FSN.</td>
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</table>
|   |   | A modeling exercise of a consequential life cycle analysis would be interesting, essentially what would happen if there
were no cows? Then modeling resource efficiency for global productivity gains to meet protein, macro and micro nutrient needs. This modeling exercise would be meaningful if it can be modeling in the context of on whole food value chain (on farm production and off-farm transportation and consumption), considering the human diet change and related economic/market interaction.

The authors point out the increase in agriculture’s use of nitrogen, but fail to mention the potential role of livestock in cycling nitrogen through animals and providing nitrogen that then can be used to offset the importation of new nitrogen to a watershed. The panel would do well to look at the nitrogen cycling potential of animals and the role of manure to offset imported nitrogen to watersheds.

The price volatility experienced by the livestock sector would be an interesting exploration as the SDGs point out well that there needs to be responsible sustainable investment in livestock. It would be great to discuss the current issues related to the price volatility of the market and role this plays in developing sustainable growth of the sector.

Good animal health is the single most important factor for a low use of antimicrobials. Healthy animals are also more climate friendly since they live longer and have higher production. Moreover, healthy animals produce safer food and are more economic and less time consuming for the farmer. The importance of healthy animals on many different outcomes should therefore be emphasized further in this document.
<table>
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<tr>
<th>Page</th>
<th>Reference</th>
<th>Text</th>
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</table>
| 57   | 47        | The importance of the prudent use of antibiotics should be mentioned in the report. The prudent use of antibiotics is necessary in animal husbandry in order to improve animal welfare, avoid chronic infection, and achieve sustainable animal husbandry. Animals that are sick and/or in pain and suffering should be treated in a correct way in order to ensure good animal welfare and avoid the development of chronic infections. At the same time, healthy animals should not be treated with antibiotics as part of a routine or management system, nor should chronically infected animals that are not expected to recover to a healthy state. Both extensive use of broad-spectrum antibiotics and extensive treatment of chronically infected cows will lead to the development of resistant bacteria and is therefore not a sustainable use of medication.  

http://www.fil-idf.org/Public/PublicationsPage.php?ID=27121#list |
| 58-59| Sub-section 3.4.4 on Animal welfare | Some place in this section the work of OIE on animal welfare standards should be mentioned.  
ref. http://www.oie.int/animal-welfare/animal-welfare-key-themes/ |
| 43  | 16-20     | The claim that livestock sectors will continue to focus only on milk and meat and not manure seems short sighted and not a reflection of the marketplace. The industry and research institutions globally are all looking for innovative ways to maximize nutrient returns. For example, in 2014 United States in Partnership with the White House, EPA, |
USDA and Department of Energy launched a Biogas Roadmap to encourage investment and research for nutrient capture, renewable energy and harvesting of nitrogen and phosphorus from manure and food waste.

Specific Comments not related to one particular question

7-20

The discussion on the key role of the livestock sector could refer to a publication from the US National Academy Press, “Critical Role of Animal Science Research in Food Security and Sustainability”, by Committee on Considerations for the Future of Animal Science Research; Science and Technology for Sustainability Program; Policy and Global Affairs; Board on Agriculture and Natural Resources; Division on Earth and Life Sciences; National Research Council, Critical Role of Animal Science Research in Food Security and Sustainability, National Academy of Sciences, available from The National Academies Press at

http://www.nap.edu/catalog.php?record_id=19000;


9 5 and 6

"livestock production has been responsible for the emergence of important zoonotic diseases such as new variant Creutzfeldt-Jakob disease (CJD) ("mad cow disease").

Suggest that this be reworded to be more in line with the WHO statement

http://www.who.int/mediacentre/factsheets/fs180/en/

"The consumption of food of bovine
origin contaminated with the agent of Bovine Spongiform Encephalopathy (BSE), a disease of cattle, has been strongly linked to the occurrence of vCJD in humans."

A possible reword to the HLPE doc would be:

"Livestock production using inappropriate feeding practices that are now banned has been linked to the emergence of important zoonotic diseases such as new variant Creutzfeldt-Jakob disease (CJD) ("mad cow disease")."

22 Figure 1

Figure 1 is the conceptual framework of the document, it would be better to move it upfront and then explain the structure.

22 Figure 1

Figure 1 aims to capture linkages between different subcomponents of the system of agricultural development and their relationship to other drivers and to FSN objectives. It would also be beneficial to have a figure that maps the considerations and role of a farm to the SDGs and each livestock sector’s considerations (social, economic, environmental and health) to the SDGs.

22 Figure 1

Food production and consumption should not be depicted as being linear. Nutrient cycling should be included in the diagram. The waste and losses in the system is not all lost in the system, there is a natural cycle that has not been taken into account in the diagram.

24 17-19

What is the source of the following statement? “World per capita consumption is currently 83 kg....”

IDF data provides a different number: “In 2014, global per capita dairy...”

35 24-31

Nearly half the biomass (48 percent) eaten by livestock is grass, which is mostly grown on land unsuitable for crops, and in developing countries stovers (fibrous crop residues) are a key feed resource, comprising sometimes up to 50 percent of the diet of ruminants in these regions (Herrero et al., 2013). We have also seen studies about the inedible human feeds that are fed to animals being between 80-95% in developed and developing countries (See, for example: Swanepoel, N., P.H. Robinson, L.J. Erasmus. 2010. Amino acid needs of lactating dairy cows: predicting limiting amino acids in contemporary rations fed to high producing dairy cattle in California using metabolic models. Animal Feed Science and Technology 161:103-120.).

54 3-6

The figures stated seem high and might be lost in the global averages. In the United States, and Lifecycle impact assessment of water stress, eutrophication and use was conducted and found water use was 5% and the primary source of water withdrawals were from the production of feed.

57 25-26

We suggest the wording of this sentence be changed to read, "Animal operations also produce waste, especially manure, which has the potential to contaminate air, soil and water with pathogens and toxins."

58 13-14

It does not seem to be an indisputable fact that consumers (or retailers) "are often willing to pay more for" a high level of animal welfare (f ex . Miranda de la Lama, et al, 2013). It is often said
<table>
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<th>Page</th>
<th>Lines</th>
<th>Suggestion</th>
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<tbody>
<tr>
<td>58</td>
<td>21-23, 34-36</td>
<td>The line “Cultural and religious practices related to the rearing and slaughtering of livestock, and the consumption of some livestock products, also involve considerations of animal welfare and can come into conflict with animal welfare standards” is repeated in line 34-36.</td>
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<tr>
<td>60</td>
<td>8-9</td>
<td>“From backyard chicken to intensive dairy”: Suggest changing this to: “backyard farming to intensive systems”, rather than opposing two sectors using a “cliché” (not all chicken farming is “backyard” and not all dairy farming is “intensive”).</td>
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<tr>
<td>65</td>
<td>44-46</td>
<td>Suggestion: clarify the meaning of the word, “spread” in this sentence. It is not clear whether it means, to “diffuse” the risks or to “share information on” the risks, or something else.</td>
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<tr>
<td>66</td>
<td>5</td>
<td>Typo: the end of this sentence is missing</td>
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<tr>
<td>66</td>
<td>20</td>
<td>&quot;Consider using taxes and subsidies to boost regulations to influence healthy food choices”. The use of taxes puts the focus on/demonizes individual foods rather than putting the focus on total/healthy diets and allowing for consumer choice/preference.</td>
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<tr>
<td>66</td>
<td>32</td>
<td>Typo correction: “Responses”</td>
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<td>81</td>
<td>30-33</td>
<td>We would like to know the references that inform the statement “...to reduce...unhealthy overconsumption of animal-sourced foods (especially red meat) in some populations.” We acknowledge that there are some references (reducing consumption of red meat has already been recommended in the 2015 DGAC report), but we think this statement/claim needs to be defined much more specifically.</td>
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<td>81</td>
<td>15-16</td>
<td>The recommendations need to be based on sound science.</td>
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<tr>
<td>82</td>
<td>5</td>
<td>Suggest making this statement subjective given that not all production systems and practices have the same impacts: “livestock can generate”:</td>
</tr>
<tr>
<td>85</td>
<td>25</td>
<td>Recommendation 18b needs more detail/explanation of “encouraging lower consumption of ASF in some populations.”</td>
</tr>
<tr>
<td>85</td>
<td>29</td>
<td>Recommendation 18c. In addition to identifying a range of interventions as noted, there should also be a call for evidence of efficacy for these kinds of interventions. Eg. What is the evidence that advertising restrictions are effective? Result in desired behaviors?</td>
</tr>
<tr>
<td>85</td>
<td>29-31</td>
<td>c) Review the scope for a range of interventions including labeling (covering nutrition as well as</td>
</tr>
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</table>
As stated above, the use of taxes puts the focus on/demonizes individual foods rather than putting the focus on total/healthy diets and allowing for consumer choice/preference.

72. Katarina Eriksson, Tetra Laval Food for Development Office, Sweden

We would like to draw your attention to a new and very interesting report "Smallholder farmers and business – 15 pioneering collaborations for improved productivity and sustainability" (July 2015). This report shows how pioneer companies and organizations have sustainably increased the incomes and livelihoods of millions of smallholder farmers around the world, by sourcing produce from them or selling products to them. Another conclusion of the report is that companies can increase their margins significantly by working with smallholder farmers. The study is produced by HYSTRA with support of the Swiss Agency for Development and Cooperation, Danone Ecosystem Fund, responsAbility Investments AG and C&A Foundation. The report emphasizes smallholder farmers’ role as active partners rather than aid recipients. One of the 15 case studies presented is “PRAN Dairy Hubs”, a project supported by Tetra Pak and the Tetra Laval Food for Development Office. After reviewing almost 300 cases, the Dairy Hub project together with PRAN in Bangladesh was selected as one of 15 successful solutions to be presented in the report.

In our opinion, a key for success in small holder agriculture development is to develop business models that give all actors incentives to develop in the right direction. HYSTRA’s report gives many good examples of how incentives can be created. We recommend that the role that business models and incentives play for sustainable development of agricultural value chains is reflected in the HLPE report. We are happy to share more information about our experiences in development of small holder milk production and how small holder farmers can become part of formal value chains also in developing countries.

Download the report here: http://hystra.com/smallholder

73. Rahul Goswami, India

Thank you for providing the opportunity to register my comments and observations on the 'zero draft' of the report on 'Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock'.

1 Overall comments

This work of the HLPE for the CFS is to be appreciated for its seeking to draw up a framework which consultatively can guide the work and recommendations of the CFS on the ecological, economic and social aspects of current agricultural and cultivation systems. I have read this zero draft as assisting a description of the conventional development of the agricultural sector in countries, noting the different interpretations of food security (from fundamental right to commercially-determined), and exploring
agro-ecological options for cultivating actors whose scales are diverse - from smallholders to industrially oriented. The zero draft will benefit the CFS's work by including more emphatically the advantages of organic practices, which are estimated to significantly reduce greenhouse gas emissions (compared with conventional high-input agricultural practices) and which moreover use a third (or more than this fraction) less energy. A steady global conversion to organic farming practices would transform the economic sector called ‘agriculture’ from being a main cause of global warming to being a small or negligible net contributor to any region's carbon footprint, and this is an aspect that deserves more comprehensive treatment in the zero draft.

There is likewise a need to reinforce the links between good health and organic produce, which is more nutritious. There is now a mass of scientific evidence that organic diets decrease the incidence of cardiovascular and neurodegenerative diseases as well as cancer. From the point of view of employment and income generation, organic farming practices provide about a third more work in rural areas, and the peculiar measures adopted by conventional macro-economics also find satisfaction that higher returns per unit of labour input can be realised through organic cultivation. Moreover, what is just as important from the political economy perspective is that communities and societies progress to a point where they have and exercise control over their crop choices and food supply. Ethically, organic agriculture promotes a cautious and responsible management of food and farming systems and rejects technologies and processes that do not respect human rights and the well-being of farm and non-farm fauna.

2 Specific comments

A

I advise that subsequent drafts devote more space to an accurate characterisation of the current conditions concerning: (a) what is considered agriculture and food policy, (b) how the food industry in fact functions, (c) how farmers' crop choices are influenced, (d) the ways in which consumers' food purchase choices are shaped, (e) the prices (to industry, government, household and producer) at which such choices are made out to be economically 'viable', and (f) the environmental, ecological, cultural and social costs that are incurred with these choices.

This is necessary as today a small number of increasingly powerful corporations dominate global markets and also what is considered the public policy space concerning agriculture and food. Despite having brought rapid growth in production of a few staple commodities, hunger and malnutrition persist, as do environmentally unsustainable production practices. Overall, at the inter-governmental level as well as at the national level, policy-makers have failed to confront the new realities of the dangerous interdependence of food, fuel, and financial markets in the face of climate change. The token changes mentioned so far have been inadequate to produce the kinds of structural reforms in global and national policies that are required to take us on a different path toward a different result. This different result and practice includes ensuring that farmers have access to decent land, public research and extension, credit, marketing support, measures to stabilise prices at remunerative levels, and import protection where necessary. These are not new ideas, and have been put forth since the early 20th century in most countries which began to follow (or were advised to by multi-lateral development banks) industrial agricultural methods. These ideas were also strongly supported by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) in 2009. [See http://canadianfoodstudies.uwaterloo.ca/index.php/cfs/article/view/98 for example]

B

The destructive nature of the prevalent agro-industrial-retail system. The food production and retail combine has for the last generation hedged policy (through but not limited to new trade agreements) in order to protect its collective monetary growth in Asia, Africa and South America. The 'supermarket' mode of the provision of processed, packaged and advertised food has caused entire countries to become
in effect net food importers, and has altered public health profiles (such as in Mexico where under NAFTA processed food consumption has skyrocketed).

In Asia, Africa and South America processed foods - produced by Mondelez, Nestle, Pepsico, Danone, Unilever and similar corporations, their national partners and their subsidiaries - are major greenhouse gas emitters, not only because of all the energy used in packaging, processing and transporting the foods, but also because of the emissions from farms contracted to them in order to supply their agricultural raw materials at their specifications. This is the high-input, high-energy model for processed and packaged foods which are economically explained away as benefiting from scale and 'globalisation', whereas they in fact make use of an abundance of concealed subsidies and the fact that the ecological and climate costs remain off corporate balance sheets and off national accounts.

The growth of supermarkets and processed foods also means increased deforestation, and other changes in land and water use, to produce more sugar, maize, soybeans and palm oil. In Nigeria, Wilmar, the largest palm oil trading company in the world, plans to expand its oil palm plantations which will inevitably mean new deforestation. Through its trade agreements with the Association of Southeast Asia Nations (ASEAN), India has become a major market for Indonesian and Malaysian palm oil, displacing coconut, mustard, groundnut, sesame and other traditional Indian vegetable oils, which were far less damaging to the health of Indians and to climate. The same is true for China, the second largest market for South-East Asian palm oil after India.

The contest between sovereignty and trade. The United States of America, the European Union, Australia, and other countries have nearly scuppered an outcome for the proposed permanent solution for public stockholding programs for food security purposes as demanded by 47 developing countries at the upcoming ministerial meeting of the World Trade Organisation (WTO). In a coordinated effort to block the G-33 proposal for arriving at the permanent solution for public stockholding programs for food security, the US, the EU, Canada, Australia, and their allies are denying a permanent solution at the Nairobi ministerial meeting beginning on 15 December 2015. Last year, the WTO’s General Council mandated members to negotiate a permanent solution for the public stockholding programs for food security by the tenth ministerial conference. Subsequent drafts must address the subject of global trade policy and how it contributes to global goals such as food security and food sovereignty, sustainable development, environmental conservation, financial stability, expanded access to quality public services, the creation of good jobs, and the reduction of poverty and inequality. After 20 years of experience with the WTO and its corporate-led model of globalisation, it is clear that this particular model of trade has failed workers, farmers, the poor, and the environment, while facilitating the enrichment of those who control finance capital and their political servants. Since its mandate is to further liberalisation and increase trade - rather than ensure that trade be subservient to meaningful goals - the WTO is the wrong institution for governing the global trade system and in particular its agricultural aspects.

Many if not nearly all 'developing' countries have circulated proposals to ameliorate the worst of the imbalances before a new round of 'market access' negotiations is begun. When developing countries agreed to launch a new round in 2001, it was with the specific promise that the round would focus on development issues, which included correcting the existing problems and imbalances in the WTO, with a particular focus on improving the extremely unbalanced agriculture rules. Since then, some developed countries (the US< the EU and their allies) have insisted on relegating the development agenda to the background, while insisting that their 'market access' issues rise to the top priority in the negotiations. Thus, nearly 14 years after the launch of the Doha Round, the development issues which members agreed to prioritize still remain unresolved within the WTO. Members want a permanent solution on food
security by allowing public stockholding programmes for resource-poor farmers to be allowed in the notorious WTO 'Green Box' (a mechanism that recalls the most inimical of colonial approaches). WTO members must now move beyond the outrageous opposition of the USA to the proposal to allow the developing countries to engage in public stockholding programmes to support smallholder agricultural producers as well as ensure food security for their populations. This is the aspect the CFS must include.

D
Elements of genuine sustainability. Farmer seed systems are the origin of agriculture. They are the fundamental prerequisite for not only farming households but for food consuming communities to determine their crop choices and their diets. The rights of farmers over seeds have been recognised by governments in several international treaties, but the same governments are signing new laws and regulations that trample on those very rights to allow multinational and national/regional corporations alike to further dominate seed supplies and to infringe the traditional and customary rights of food producers over their seeds and the manner in which these are stored, exchanged and used.

One of the ways this is done is by narratives about 'economic sustainability' which takes the shape of a curtailed and constrained monologue about efficiency, trade, technology (including biotechnology), investment, jobs and the growth of GDP. Such a view, which unfortunately is visible in various sections of the zero draft, devalues and deliberately obscures how agro-ecology has been developed from traditional knowledge accumulated historically by smallholder (or peasant) farmers, to which has been added the scientific knowledge of the last few centuries. It has been peasant farmers and indigenous peoples who have identified, adapted and incorporated new elements to improve production of food, maintaining their cultural identities without damaging nature.

The International Panel of Experts on Sustainable Food Systems in 'The new science of sustainable food systems' report has advocated a focus on food systems as a whole, and to devise broad benchmarks for sustainability, for which the boundaries dividing scientific disciplines from one another must be dismantled. "Furthermore, the siloes around knowledge itself must be definitively removed. If we are to redress power imbalances, and forge agreement around concepts such as sustainability, efforts must be stepped up to ensure that knowledge is co-produced with social actors: dismantle boundaries between the disciplines, remove siloes around knowledge, co-produce knowledge with social actors. Indeed, the knowledge generated and held by farmers, fishers, forest-dwellers, food industry workers, cooperatives, consumer groups, civil society movements, indigenous populations and a whole range of other practitioners is one of the greatest untapped resources in the quest to reform food systems." I advise the HLPE to instead devote more discussion in this direction, which will become imperative (indeed this is already the case in many growing regions and for most staple crops) in the face of weather volatility caused by climate variability and change.

Yours sincerely,

Rahul Goswami

NB: I am grateful to the Civil Society Mechanism (CSM) for circulating their preliminary comments to this HLPE zero draft.

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Dear the CFS-HLPE,

On behalf of the Thailand, Ministry of Agriculture and Cooperative, I would like to thank the CFS-HLPE for giving me the opportunity to comment on the zero draft. Please find below my comments on the V0 draft.

The current report contains many issues/case studies that achieving a balance between the agricultural sector and the livestock sector. However, agriculture is highly diversified and specialized. Different areas would have their individual sustainability challenges. In order to achieve the individual improvement on the agricultural sector for FSN, the following aspects should be more considered/defined:

- the best practice that is aimed to specific requirements,
- the existing model, particularly the potential practice, that have been developed in the regional circumstances,
- agriculture systems successfully applied by the private industries
- losses from production, especially for small farmers

I would like to encourage the working team to review the new concept on sustainable agriculture called “Philosophy of Sufficiency Economy”. This is the His Majesty's philosophy that has been implemented in Thailand. This agricultural concept aims to promote self-reliant or sustainable farming under the limitation of the existing income or resources. The small farmers could effectively decrease the dependence and increase the ability to control the production themselves.

The impacts of climate change are relatively brief in this report. In Thailand, most farmers are small landholders in rainfed areas. The agricultural sector is most vulnerable to climate change impact. The shift in land use from annual to perennial crops was due to changes in the climate and market conditions. Accordingly, climate change seriously threatens overall food security of the country. The approach useful for this challenge should be considered more.

According to the Free Trade Agreement and ASEAN Economic Community (AEC) within the year 2015, Thailand which is an Agro-industry country expects drastically increasing number of workers from neighbouring countries. This mass relocation will most likely elevate the risks of malnutrition and emerging diseases. Since the current proposed systems do not well succeed at capturing this aspect, it would be of interest to analyze the sustainable development pathway for this specific challenge.

The following aspects are suggested to be greater captured in the report:

- effects of using chemical/pesticides/antibiotic in agriculture/livestock on sustainability and FSN
- impacts of logistic management/post harvesting system on sustainability and FSN
- production system that reduce production cost, and increase communities value in food and energy production
- use of local knowledge, appropriated technology that is economically viable and socially acceptable to produce high value agricultural products
- use of cooperatives to enhance fairness and sustainability for small farmers
- application of zero waste principles to utilize farm residuals and by-products
- policy on bio-energy, green energy
- new approaches to increase food supplies while protecting the available resources and reduce the inputs such as use of genetic plants and animals
- agroforestry system that help preserve land quality
- sustainability and FSN of halal food
- organic farming
- animal emerging diseases
- insects for food and feed.

Hopefully, these suggestions will be useful for revising the next version.

Yours sincerely,

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75. Stéphane Parmentier, Oxfam, Belgium

Oxfam input for the consultation on the HLPE V0 draft report on “Sustainable Agricultural Development for Food Security and nutrition, including livestock” 12th of November 2015

This report is a critical element of next year work of the CFS on a very timely issue were much more action and more policy convergence are needed. It is also clear that business as usual or small adjustment of the current agricultural and livestock system is not going to be enough to achieve the right to adequate food and to ensure the whole food system is sustainable and climate resilient.

The draft report is very comprehensive and touches on a wide range or critical issues, it provides globally a good balance between the focus on sustainable agriculture and livestock (= our question to question 1 of the consultation) and includes a number of positive elements. However, there is significant room for manoeuvre to improve it. Among others: some important challenges are missing (see below our answer to question 5); agroecology is almost completely absent of the report (just referred to once in the whole document – p.19), clearly underestimating its importance and relevance for meeting sustainability challenges of agricultural and food systems (see in particular our answer to question 12); and the recommendations section does not include some important elements while including some problematic measures on the other hand (see our answer to question 12 as well).

Hereafter we’ll focus our input to questions 2, 5 and 12 raised by the HLPE team:

The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

In terms of the context, one important trend is missing: despite the growing consensus that has emerged on the need for proceeding to major changes in agricultural and food systems in order to ensure that the world can feed itself, today and in the future, with healthy and nutritionally high-quality food, while contributing to eradicating poverty, preserving biodiversity and natural resources, mitigating and adapting to climate change in a resource-constrained world, reinvestment efforts in agriculture since 2008 have been channelled into a slightly modified version of the Green Revolution. In other words, despite nice rhetoric over the need to shift the industrial agrifood system to a truly more sustainable paradigm, reinvestment efforts in agriculture are still further consolidating that system/model, which has clearly failed to feed the world, while being responsible for nearly half of the
world’s human greenhouse gas (GHG) emissions, for strengthening social inequities among actors in the whole agrifood supply chain, and for further polluting and depleting natural resources among others. On the other hand, despite the massive existing body of evidence demonstrating how efficient scaling-out and up agroecological approaches would contribute to ensuring sustainable and resilient agricultural and food systems today and in the future, these approaches remain poorly supported.

This huge contradiction has been recognized by different actors. See for example:


Some important challenges are missing. See our answer to question 5 below.

The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

There are indeed important challenges that so far are not included in the report, and that should be considering their importance. Here are at least 3 challenges which would deserve a specific focus in the report:

The need to increase significantly land productivity through agricultural approaches that are globally labor-intensive in countries whose economies are highly dependent on the agricultural sector

First, in terms of the “productivity” debate, the draft report favours a reductive and simplistic approach consisting in focusing narrowly on the concept of “yield”, while it is much more relevant to talk about “land productivity” (concept that is used only once in the draft report – p.34). Indeed, the concept of “yield” is a narrow one for measuring productivity since it focuses on measuring only the production per unit area of one single crop (like “metric tons of corn per hectare” for example), instead of allowing measuring the total output per hectare: all that is produced per unit area, which is captured by the concept of “land productivity”. The mainstream, almost systematic use of “yields” instead of “land productivity” in agricultural debates has important implications, notably when it comes to providing relevant data to inform decision making processes. This can sometimes lead for example to design agricultural policies that support large-scale monocultures instead of diversified small-scale farming systems, based on the fact that the yield per unit area of the one crop that is grown in monoculture will be higher than within a small-scale diversified farming system (which by the way is not necessarily true). But we forget that diversified small-scale farming systems produce usually much more things on the same unit of land (through intercropping, crops rotation, integration with livestock, etc.). As a result, the land productivity of those systems is much higher. And in terms of the Food Security and Nutrition debate, and considering land scarcity, it is much more relevant to consider the total output that is produced per unit area, thus land productivity, than to consider only the output measured for one single crop (through the concept of yield).
On the difference between “yield” and “land productivity” and its implications, see for example: Rosset P.M., 1999. *The Multiple Functions and Benefits of Small Farm Agriculture In the Context of Global Trade Negotiations*, Food First (Institute for Food and Development Policy).

Then and more importantly, in terms of the productivity challenge, it is important to stress that in countries whose economies are highly dependent on the agricultural sector, the challenge is not just increasing yields / land productivity (while of course addressing as well other sustainability challenges to make agricultural -and food systems- more sustainable today and in the future: preserving biodiversity and natural resources, addressing climate change challenges etc.), but to do it through agricultural approaches that must necessarily be globally labor-intensive, in other words through approaches which have a relatively low productivity per worker. In these countries (which are mainly poor countries), where the agricultural sector remains the only sector that can realistically employ the majority of people, promoting agricultural approaches that would induce a fast increase of the productivity per worker would generate massive unemployment, rural and urban poverty. This does not mean that the productivity per worker does not need to increase in these countries as well (it is effectively the case), but this needs to be progressive and in consistence with the pace of development of other sectors of the economy, on a case by case basis (otherwise you just generate indeed massive unemployment, rural and urban poverty – e.g. if promoting a massive and brutal mechanization of agriculture).

As such, this challenge is not properly taken into account in the draft report: indeed there is no development emphasizing the need to increase yields / land productivity through approaches that are globally labor-intensive.

The need to secure small-scale producers’ access to and control over natural and other productive resources

As agroecology teaches us (notably as a science, which has allowed theorizing the conditions to which sustainability of agricultural – and increasingly food systems as a whole – can be improved – those principles being the so-called “agroecological principles”), making agricultural and food systems more sustainable relies among others heavily on:

Primarily mimicking natural processes, thus creating beneficial biological interactions and synergies among the components of the agroecosystem;

Building on existing farmers, traditional and local knowledge and know-how (while combining it with modern agroecological science), recognizing the phenomenal sustainability that traditional peasant farming systems have demonstrated throughout the ages, and as a corollary of the treasures of knowledge they represent for achieving sustainability today and in the future, notably in the context of climate change;

Bottom-up dissemination and innovation processes in which farmers take the front seat in developing context-specific solutions.

As a consequence, successful transitions aiming at making agricultural and food systems more sustainable require securing small-scale producers’ access to and control over natural and other productive resources: land, water and other natural resources, as well as seeds. When farmers’ access to and control over seeds are threatened, their flexibility to design sustainable farming systems that are adapted to their particular needs and to the specificities of each local context, is undermined. Farmers’ adequate access to and control over land, water and other natural resources is also essential, firstly because peasants need to be able to mobilize resources to develop adequate strategies and practices for increasing sustainability. Moreover, improved security of tenure is also important for
encouraging farmers to invest in the long-term sustainability of the environment (e.g. through the planting of trees, the more responsible use of soils and other practices with long-term payoffs), since they will be more motivated to take care of the land and other natural resources their livelihoods depend on if they can be ensured they won’t lose them to industrial or urban developers of large scale agricultural business.

So far, the challenge of ensuring adequate access of small-scale producers’ access to and control over land, water and natural resources, and seeds, is almost completely missing in the draft report: access to land is just mentioned twice (p.9 and 12), while access to seeds is not mentioned even once. On the contrary, this should be acknowledged and should receive specific attention. For good reason: no way successfully transitioning existing agricultural and food systems into more sustainable ones will be possible without addressing this challenge...

For more development on the importance of securing small-scale producers’ access to and control over natural and other productive resources, see for example Oxfam- Solidarity discussion paper Scaling-up agroecological approaches: what, why and how?, January 2014 (notably p.63 and 64).

The need to democratize agricultural and food governance

At the risk of sounding ideological, ultimately, the majority of obstacles to the scaling-out and up of truly more sustainable agricultural (and food) approaches are a result of a democratic deficit in relevant decisions making bodies. Throughout the world, to various degrees depending on the scale and region considered, decisions that shape agricultural and food systems are indeed disproportionately influenced by vested interests of a minority of actors to the detriment of the general public interest, of sustainable development and of the fundamental rights of a majority of populations. These actors are the proponents as well as the beneficiaries of the current corporate agro-industrial food system. They include ‘traditional’ actors of the agri-food value chains such as global food retailers, food processors, commodity traders, the pesticide or transgenic industries. They also include other actors, not active or traditionally active in food and agriculture, such as pension funds, companies in the automotive industry, or oil companies, who can exert a strong, indirect influence on various policies that directly or indirectly shape the dynamic of the agri-food system, be they agricultural, energy, trade, or financial policies. These actors invest considerable means to protect their particular interests against any decision that may threaten them.

Democratizing decision-making processes and in particular increasing the active participation of small-scale food producers in decisions that affect them and shape agricultural and food systems is a crucial challenge. This is a key stepping-stone for truly overcoming obstacles for more sustainable agricultural and food systems. Active participation of small-scale producers, and especially women, must be ensured at local, regional (subnational), national and international levels. Real participation is crucial to ensure that all relevant policies are truly responsive of the needs of vulnerable groups and for empowering them. Public authorities have a major responsibility in taking strong actions for dismantling the disproportionate market power of those using their influence to highjack and format agricultural and food systems to serve their own private interests.

For now, as such, this challenge is missing in the draft report, also certain (very few) text passages do refer indirectly / implicitly it to some extent (e.g. second paragraph of p.41, second paragraph of section 4.5 in page 67, or some recommendations calling for an effective participation of all actors / inclusive processes). This is not enough. Given its importance this challenge deserves a specific focus / development in the report, and there should be consistent recommendations to help addressing it, focusing on the need to increase in particular the participation of the most vulnerable and marginalized (see below our point on recommendations in our answer to question 12 of the consultation).
For a bit more analysis on the issue, with concrete examples of the corporate influence over the food and agricultural system, see for example part III, section E., sub-section 2 (“Democratizing decision-making processes”) in Oxfam-Solidarity discussion paper, Op.cit.

A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

This approach is useful indeed, but should be further developed. This is the only place where the report stresses a bit more the importance of the transition process itself (how to design and put in practice the best context-specific solutions in a given context) for achieving greater sustainability, while the quality / coherence of the transition process is key, and should receive much more attention in agricultural and food systems development than it currently receives.

All too often, in agricultural debates the challenge of sustainability of farming systems is still essentially reduced to the identification of “good practices”, as if it was possible to identify a few magic bullet solutions that would be independent from the environment to which they apply and could be disseminated following top-down approaches for achieving sustainability. However, agricultural sustainability is not about intrinsic characteristics of a few magic bullet solutions that are divorced from local contexts and can be disseminated following top-down approaches. It relies on the quality of complex interactions that result from an entire package, adequate combination of various practices whose operationalization in particular circumstances will necessarily have to change depending on each context, since each environment has its own characteristics and conditions to achieve sustainability. Depending on how it is concretely applied and completed or not by other practices, one particular technique (e.g. no-till) can sometimes either be an active component of a truly sustainable farming system, or on the contrary contribute to non-sustainable impacts.

Agroecology has a strong added value in this regard. As an agricultural approach, agroecology could be defined as a holistic transition process aiming to make agriculture economically, ecologically and socially more sustainable by realizing to further degree agroecological principles (understood as those on which sustainability depends, as theorized by agroecology as a science). As a process of transition towards more sustainable agricultural systems, agroecology consists therefore essentially in designing and applying an adequate strategy for managing the transition, one that can improve sustainability in the particular context considered, through means that are adapted to local conditions. Designing such strategy requires meeting certain conditions, including:

Proceeding to a comprehensive diagnosis of sustainability challenges and conditions specific to the given context. This diagnosis requires a holistic approach. This notably means the following:

All relevant aspects of sustainability, whether linked to food security, environmental protection, and/or community well-being, must be taken into account, recognizing the multi-functionality of agriculture;

All human and environmental constraints, and the ways through which those elements interact with each other, as well as all assets (natural, social, human, physical and financial) locally available, must be identified;

Expected benefits in the short, medium and long term must be defined;

The need to go beyond the level of the plot or the farming system, as well as to thinking in terms of collective actions, thus requiring coordination between different actors.

Building primarily on functionalities given by the ecosystems. Indeed, realizing agroecological principles consists primarily in mimicking natural processes, thus creating beneficial biological interactions and
synergies among the components of the agroecosystem. It must notably lead to minimize the use of non-renewable inputs that cause harm to the environment or to the health of farmers and consumers. However, agroecological farming does not exclude the use of chemical inputs. It rather seeks to reduce the use of all off-farm inputs (chemical or biological) to an absolute minimum;

Ensuring a farmer-led, bottom-up approach. Agroecological farming is knowledge-intensive and based on techniques that are not delivered top-down but developed on the basis on farmer’s knowledge, experimentation and innovation, combined with modern agroecological science, thus leading to a co-construction of knowledge.

These conditions are all essential variables to take into account for optimizing the chances to find the best possible context-specific solutions for improving sustainability in the particular context considered.

As such, instead of looking primarily on techniques, agroecology rather precisely invites us to focus on the coherence / quality of the transition process itself for achieving greater sustainability. If the process is coherent (i.e. following key conditions such as those described above), then it should lead in principle to the most adequate combinations of practices in the particular context considered (at least, this represents the best way to optimize chances to increase sustainability in a given context). Moreover, this would minimize trade-off in the context considered, since the various priority sustainability challenges, in such a process, will have been properly identified. On the other hand, neglecting the importance of the transition process itself by focusing too quickly and narrowly on practices, at best leads to sub-optimal solutions, and at worst to further increase the sustainability crisis.

In synthesis, as agroecology teaches us, ensuring a coherent transition process is more important for achieving greater sustainability (through ad how context-specific solutions) than focusing too quickly on techniques.

While the draft report includes some consideration of the importance of the transition process itself through its section 4.5 indeed (“Approach to policy decision-making and actions”), it should go much further in addressing this. And it could do so by building on / taking useful inspiration from agroecology as a science and as a holistic agricultural approach.

For more information, see Oxfam-Solidarity discussion paper, op.cit. See in particular Part 1, section D (pp.19-28). The discussion paper is backed by numerous references for further information.

Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Here we’ll focus on 2 issues:
Agroecology as a major gap in the draft report;
The recommendations section.

Agroecology as a major gap in the draft report

As mentioned in the introduction of this document, agroecology is almost completely absent of the report, clearly underestimating its importance and relevance for meeting sustainability challenges of agricultural and food systems. Maybe this is partially due to a misconception / misunderstanding of what “agroecology” or “agroecological approaches” is / are. Therefore, as a starting point, it is worth clarifying the concept. Then we’ll explain why it should be mainstreamed in the draft report.

Clarifying the concept
Agroecology is far from being one set, or even a few sets, of nice agricultural practices which could substantially help increase agricultural sustainability but only in a few very specific, limited contexts. It is a federative concept of actions, intermediate between the following three key dimensions: agroecology as a scientific discipline; agroecology a holistic agricultural (and increasingly food systems) approach; and agroecology as a social/political movement. In short:

As a scientific discipline, it is basically the science of sustainable agriculture, and increasingly food systems as a whole. Originally based on the re-discovery of traditional small-scale farming systems, as mentioned above the practice of this scientific discipline has allowed and is further allowing the theorization of the key conditions to which sustainability can be increased. Those conditions are the so-called “agroecological principles” (whose theorization is an ongoing exercise although there is a large consensus on five ‘historical’ principles – e.g. increasing the recycling of biomass and achieving a balance in nutrients flow, assuring favourable soil conditions, or minimizing nutrients losses from the system, through relatively closed rather than open system design). As a science, agroecology represents the best effort ever made to understand how sustainability works, at which conditions it can be improved. This is a big added value compared to other “sustainable agricultural approaches”, such as “sustainable intensification” or “climate smart agriculture”, which per se are not scientifically grounded;

As an agricultural approach (and the approach tends to be increasingly expanded to food systems as a whole), agroecology can be defined as a holistic transition process aiming to make agriculture economically, ecologically and socially more sustainable by realizing to further agroecological principles, through multiple context-specific combinations of strategies and practices that are designed, applied and managed primarily by farmers themselves. In that sense, it is everything but a simple “catalogue of techniques”. It is more a kind of broad methodology to guide us for achieving greater sustainability. One very important element to understand in this regard is the fact that this methodology is basically applicable in all contexts, since there will be always some room of manoeuvre for improving sustainability (or mitigating negative externalities) in any given context. In other words, the so-called “agroecological principles” have universal applicability. But the technological forms through those principles can be made operational depend on the prevailing environmental and socioeconomic conditions at each site;

As a social movement, agroecology essentially seeks to increase small-scale farmers’ and consumers’ autonomy and control over agricultural and food systems, for realizing ‘Food Sovereignty’, understood as “the right of peoples to healthy and culturally appropriate food produced through ecological sound and sustainable methods, and their right to define their own food and agricultural systems” (Nyeleni Declaration, 2007). Increasing small-scale farmers’ autonomy vis-à-vis industrial agri-food system can notably be considered as a necessary condition for ensuring a real shift towards more sustainable agricultural and food systems.

As mentioned above, for more information on what agroecology is, see for example Oxfam-Solidarity, op.cit. In particular Part 1, section D (pp.19-28) which provides a more comprehensive explanation, and Annex 1 (78-80) which includes a synthesis of the concept based on its three key dimensions. The analysis is based on a comprehensive list of credible bibliographic resources.

**Why agroecology deserves much more attention in the draft report?**

There are a number of very good reasons why agroecology / agroecological should be mainstreamed in the report or at least have a strong specific focus in the report (including it terms of recommendations):
Firstly, as demonstrated by a massive body of evidence, it can make a huge contribution to achieving food security and nutrition, and the realization of the Right to Adequate Food, as well as to achieving other key sustainability challenges of today and the future:

**Contributing to food security and nutrition, and the realization of the Right to Adequate Food:** (1) by enhancing yields / land productivity substantially (availability of food) through solution that are globally labour-intensive while allowing a progressive increase of the productivity per worker in countries whose populations largely depend on agriculture for their livelihoods (see related developments in answer to question 5 above); (2) by boosting urban agriculture (availability of food); (3) by reducing poverty (accessibility of food); and by ensuring the adequate character of food (adequacy of food);

**Contributing to water security and the realization of the Right to Water and Sanitation** — though improving water use efficiency or productivity. This also in return contributes to food security and nutrition and the realization of the Right to Adequate Food (in particular thanks to the significant yields / land productivity increases resulting from higher water productivity and its expected positive economic impacts);

**Preserving biodiversity and natural resources.** Realizing agroecological principles indeed allow avoiding overexploiting and contaminating land and water resources, restoring degraded lands or enhancing soils fertility by increasing SOM, fostering diversification which occurs in many forms (genetic variety, species, structural) and over different scales (within crop, within field, landscape level)...;

**Increasing resilience to climate change and addressing the mitigation challenge.** The increase of resilience through agroecological transitions results from: (1) increasing the level of biodiversity; (2) building healthier soils; (3) improving water management and water harvesting in rainfed regions; and (4) optimizing yields / land productivity increases. Those 4 dimensions / levers can be considered as key conditions for better adapting agriculture to climate shocks. As to the mitigation challenge, in particular, transitioning industrial agriculture to more agroecological farming systems could significantly contribute to mitigation, since agroecological farming is highly efficient in sequestering carbon. More importantly, scaling-out and up agroecological transition processes would not only allow addressing the mitigation challenge of the agricultural sector. It would also significantly contribute to reducing current GHG total emissions of the industrialized food system as a whole, beyond its agricultural component. This can be well explained by the work of the Ngo GRAIN, which has estimated that reduction and sequestration of one-half to three- fourths of current global GHG emissions could be achieved through adopting four complementary measures: using agroecological practices to rebuild the organic matter in soils lost from industrial agriculture; stopping land clearing and deforestation for plantations; distributing food mainly through local markets instead of transnational food chains; decentralizing livestock farming and integrating it with crop production. While each of these measures is not necessarily specific to the agroecological paradigm, applying consistent agroecological transition processes would undoubtedly lead to their adoption;

**Increasing small-scale food producers’ control over agricultural and food systems.** Existing evidence shows that agroecological transitions lead effectively to increasing farmers’ autonomy and control over their production systems, first by reducing to an absolute minimum their dependence on off-farm inputs, state subsidies to agrochemicals, local retailers and moneylenders. Increased control of peasants also builds on the bottom-up and farmer-led methods privileged for designing and managing agroecological transition processes, as illustrated by the CaC *(campesino-a-campesino - farmer-to-farmer)* methodology. Such approaches allow peasants to take responsibility and control over transition processes, enabling them to share, discuss and decide on their own what they want to do. Ownership of processes by farmers depends importantly on the inherent flexibility available to them for trying out the practices on their own farms, adapting and innovating for addressing their specific problems with available resources. But agroecological transitions can also strengthen peasants’ control over food
systems more broadly, through the development of alternative agrifood networks (AAFNs) such as producer–consumer networks, collective producer shops, farmers’ markets, box schemes and school provisioning schemes, as well as through and a growing influence on public policy;

Empowering women. Although more information / analysis is needed at that level (lack of data), existing evidence reveals that agroecological transition processes have an enormous, inherent potential to empower women, demonstrating that when they are properly conceived and managed, they lead effectively to women’s empowerment.

For a comprehensive analysis, backed up by numerous references, of how agroecology / agroecological approaches contribute to achieve these different but complementary sustainable challenges, see Part II (pp.33-58) of Oxfam-Solidarity discussion paper, op.cit.

Secondly, there is no other scientifically grounded approach which allows developing context-specific solutions, avoiding a top-down, standardized one-size-fits-all approach. There is other approach capable of taking that much into account the specificities of each local context. This is due to what agroecology is fundamentally in terms of a holistic agricultural (and increasingly food systems) transition process or approach, based on the best effort ever made to understand how to achieve greater sustainability. In that sense, agroecology is very inclusive, allowing identifying ways to transition extremely diverse agricultural (and food) systems into more sustainable ones, primarily through the identification of the available room of maneuver to do so given the specific agronomic, pedo-climatic, social, economical, cultural assets and constraints in each context.

Thirdly, as already explained above (see our answer to question 2), despite the massive body of evidence demonstrating the relevance of agroecology for addressing sustainability challenges today and in the future, it remains poorly supported, while on the other hand reinvestment efforts in agriculture since 2008 still continue to further benefit to the Green Revolution style agriculture that has led us to the current agricultural and food crisis... We have to keep in mind that global picture. This is a good reason as well for putting a better emphasis on agroecology, in order to contribute shifting a bit the huge (and abnormal) lack of today’s institutional, political and funding support to it. Although there are debates as to the centrality of agroecology for addressing sustainability challenges of agricultural and food systems. But everyone needs to recognize it is part of the solution. And that part of the solution is obviously neglected. This must change and the HLPE report could help addressing this gap.

Here is a short selection of just 10 useful resources for more information on agroecology and for better taking stock of its importance for achieving greater sustainability:


http://www.researchgate.net/publication/228918934_Reducing_food_poverty_by_increasing_agriculture_sustainability_in_developing_countries


Oxfam International, Building a new agricultural future. Supporting agro-ecology for people and the planet, April 2014:

Scientists’ Support Letter for the International Symposium on Agroecology’, FAO, 18-19 Sept 2014:

https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/7482/The%20New%20Green%20Revolution%20How%20Twenty-First- Century%20Science%20Can%20Feed%20the%20World.pdf?sequence=1


Nourishing the World Sustainably: Scaling Up Agroecology, produced by the Ecumenical Advocacy Alliance, 2012:

Inputs on the recommendations section

On the recommendations we have the following general comments:

Throughout the report it is clear that paths toward sustainability depends greatly on the size and model of farms/livestock system. However, this differentiation is not strongly enough included in the recommendations. In order, to provide evidence based guidance, the recommendations need to be specific for the different types and size of farming.

There is still room to be more prescriptive and specific in the recommendations and underline more precisely how they should be implemented and prioritized. It would be also helpful to make an estimate on how much it could cost the implementation of this agenda

Comments on recommendations on cross-cutting issues:

Consistent with our previous comments on agroecology, a key recommendation that should be included is the need to scale up agroecological approaches. As recognized in the Global Strategic Framework, agro-ecology works to increase smallholders’ incomes, resilience and sustainability. This would require policy changes and increase investments to put in place adequate supporting measures and policy environment. Some specific recommendations can be found here: https://www.oxfam.org/sites/www.oxfam.org/files/ib-building-new-agricultural-future-agroecology-280414-en.pdf
It is key to remember governments’ commitments in relation of public investment, notably on food and agriculture, including e.g. the commitment to deliver 0.7% of GNI as ODA and the African countries commitment to deliver at least 10% of their budget to the agricultural sector as well as climate finance commitments;

On the recommendation 1.b., it should be made clear that investments should be targeted to ensure that they benefits to small scale producers. This is a key condition to ensure they contribute to FSN;

On the recommendation 1.d. (as well as on para 23), public-private partnerships are mentioned. However, unless we missed it, they are not discussed in the rest of the report at all. If they are included in the recommendations they should be discussed in the report and it should be illustrated how and in which conditions (who should be involved, how to ensure they do no harm, benchmarks, etc.) they can contribute to deliver SAD and FSN;

Still on recommendation 1.d, in terms of participation of multiple actors to the design and execution of more sustainable, food and nutrition security oriented agricultural development policies, it is critical to put first and foremost the emphasis on increasing the participation of small-scale food producers in decisions that affect them and shape agricultural and food systems. As mentioned above (see our related point in our answer to question 5 above), the active participation of small-scale producers, and especially women, must be ensured at local, regional (subnational), national and international levels. Real participation is crucial to ensure that all relevant policies are truly responsive of the needs of vulnerable groups and for empowering them. This would be a starting point for democratizing agriculture and food governance.

Comments on the recommendations on the social pillar:

It should be much clearer the need to ensure access to all productive resources (land, water, other natural resources, as well as seeds) for all small scale food producers and ensure that the principle of Free Prior and Informed Consent is respected as a right for Indigenous Peoples and more broadly for all affected communities;

The issue of living income is absent. May be worth to have a specific recommendation focusing on agricultural workers;

There should be language for achieving gender equity / empowering women. Among others given their crucial role in agricultural and food production, seeds and biodiversity management, and as custodians of traditional knowledge, women’s contribution is essential for successfully transitioning agricultural and food systems into more sustainable ones (including for preserving natural resources and adapting agriculture to climate change). Among others women should be systematically involved in all relevant decision making processes for transitioning processes aiming at achieving greater sustainability of agricultural and food systems.

Comments on the recommendations on the environmental pillar:

Addressing climate change is absolutely critical. The recommendation seems to be far too broad and not enough specific. It would be important to look on the HLPE report on climate change as well as the CFS agreed recommendations to ensure consistency. It is also critical to make a distinction between what should be the overarching priority of smallholders (food security and adaptation) and of industrial agriculture (mitigation). Carbon sequestration is mentioned in the recommendations but the related policies and incentives are not really explored in the report. What policies and programs we are referring to? Carbon markets? What limitations or potential/real negative impact they have?
Would be interesting to have recommendations related with phosphate, probably the resource for agriculture that will run out faster. It would be very useful to have the HLPE take on how this can be addressed.

Comments on the recommendations on the economic aspects:

Paragraph 8 does not link the whole yields / land productivity debate to the critical issue of labour productivity. As mentioned above (see our answer to question 5 above), the debate on yields / land productivity cannot be treated alone, in isolation, without addressing the question of the impacts that the approaches used for increasing them / it will have on the productivity per worker and therefore on the future capacity of the agricultural sector to provide enough employment in a given country, taking into account the pace of development of the other sectors of the economy. In other words, the recommendation should not be just to increase yields / land productivity, but to do it through approaches that are globally labor-intensive in countries where the majority of people depend on agriculture for their livelihoods (otherwise, as explained above you will generate massive unemployment, rural and urban poverty;

Paragraph 10 doesn’t take into account that there has already been a HLPE report on biofuels and that we have already enough research on the subject and on the impacts of different biofuels. This recommendation should be made more concrete and based on the HLPE report on biofuels. Notably, it should be underlined that biofuels mandates, tariffs and subsidies should be eliminated (a recommendation supported by evidence as well as by a very wide range of actors). It should be clearer that all biofuels policies should be assessed and negative impacts on the progressive realization on the right to food should be addressed by adequate changes in policies, subsidies and other support measures.

Paragraph 12 is very important but it should be underlined that there is a need to address power imbalances that create highly unequal markets relationships for small scale food producers. This would require broader interventions (such as e.g. support producers organizations to transform produce) and just a focus on transparency and competition often is not enough.

Paragraph 13 should clearly mentioned that trade related concerns should not supersede states human rights obligations notably related with the right to food. This implies that developing countries should be enabled to use effective and evidence based measures and subsidies to support small scale food producers even if they create trade distortions;

Though p. 41, lines 4 and 8 talk about the shift in the control of food systems to corporations, the recommendations have little (or nothing that we found) about how these should behave, and what governments should do to regulate the private sector. This is a major gap in the draft report;

There should be a recommendation on supporting (institutionally and financially) autonomous initiatives carried out by small scale food producers’ organizations and networks for scaling-out and up sustainable agriculture approaches, and especially agroecological approaches.

Health and animal care recommendations:

18.b is the only recommendation that focus on the need to reduce ASF in certain population and increase it in others. This recommendation will not be sufficient if we seriously strive to have a sustainable food system. An information campaign will not be enough to change that. Also based on the draft report (p. 25, line 35) we would expect a call for more stringent policies to cut western meat consumption. It would be important that the HLPE make concrete proposals on how to address this situation. It would be an important issue to be discussed at the CFS.
Under institutional recommendations:

It is critical to underline the need to ensure that research bodies and institutions work with small scale food producers and through participatory research deliver on the solutions that smallholders are looking for. In fact, still too often, research is done in isolation and then “solutions” developed are not adopted by smallholders. This is another key element of the agroecological approach;

Recommendation 23 should put primarily the emphasis on fostering greater engagement of small-scale food producers in the design and implementation, AND MONITORING, of relevant decisions / schemes. Again, they are the ones that are generally excluded and whose participation should be strengthened.

76. Anne Roulin, Nestlé, Switzerland

The report is excellent, it is very comprehensive with an enormous amount of information. The draft recommendations certainly lay out what needs to be done but I think the report should include some indications of how these various recommendations could be put into practice. A couple of concrete examples are given below:

The report mentions in several places that care must be taken in making generalisations across different geographies whereas the environmental issues are frequently local. Some of our on-going work integrates models of environmental impact, nutritional output and economic value of various combinations of crops and livestock on a local or regional level. This can allow scenarios to be evaluated where the maximum nutritional value can be produced for the minimum environmental impact whilst ensuring higher income for smallholder farmers. In this way specific solutions can be identified.

The report mentions the issue that the average age of farmers is increasing in many parts of the world and the difficulty of attracting young people to agriculture and to remain in rural areas. Some very encouraging work is being done at IITA in Nigeria where they have started a programme called Youth Agripreneurs which aims to educate and attract young graduates with a range of backgrounds towards agriculture as a business opportunity. Beginning with intensive training in agricultural techniques and business, the IITA facilitates partnerships between students and other parties including the private sector, local government and international organisations.

77. Réjean Bouchard, RBInt, Canada

Food security and nutrition are subjects that need to be addressed locally on a country basis.

1. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

The first draft of the HLPE report is a useful review of the present knowledge on the situation of food security and nutrition around the world. It is a good attempt to classify the elements under discussion in order to arrive at wide-ranging high-level conclusions and recommendations. It is a worthwhile effort to guide the attention of international organizations devoting efforts to find solutions to present and future issues facing food security and nutrition.

The document can be viewed as an effort to amend earlier conclusions from international organizations on the importance of livestock in the food chain as a tool for arriving to an acceptable level food security and nutrition. The livestock sector is well aware of attempts made to demonstrate that greenhouse gas from ruminants is the key element of climate change. This was done without considering the contribution
of livestock to food security and nutrition by supplying nutrient rich foods to all populations around the world particularly to developing countries. The report could still be viewed as expressing biases against animal production by failing to recognize the work of non-government organizations representing livestock commodities.

The key role of livestock in feeding to world population is an indisputable fact in ensuring food security and nutrition. Hopefully this report will take steps to establish the fact. The report tends to highlight issues related to livestock production rather than promoting the nutrient richness of animal products. The nutritive value of nutrient rich food such as meat of all sources and dairy products needs to be clearly expressed in the policies supporting livestock as an important source of nutrients.

Both animal and plants are equally important sources of food. There is a need for an objective assessment of the complementary contribution that each source of food can contribute to feeding the world with nutrient balanced diets in a sustainable manner. One does not need to fear objective technical information coming from livestock commodities in the area of nutrition and nutrient availability.

2. Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

The report deals with complex issues involving as many production systems around the world as there are countries and ecosystems. One has to accept the classifications and categorizations chosen by the authors. It is a first draft. The authors should be responsible for choosing the classification. The entire report is built around different classification. It is easier to handle a small number of categories when it comes to formulating concise and meaningful conclusions and recommendations.

One aspect that could be developed further is the importance of trade agreement in addressing food security.

The first draft of report on sustainable agricultural development for food security and nutrition was made available for comments at the time of the conclusions of the negotiations for the Trans-Pacific-Partnership agreement and the Comprehensive Economic and Trade Agreement between Canada and the European Union. The least that can be said about food security and nutrition for those two long term agreements is that food security and nutrition were not determining factors for the economies of developing and developed countries involved in the negotiations. Whatever happens with the enforcement of the new set of trade rules and of other similar outcomes, food commodities will continue to move around the world depending on the capacity of the buyers to pay. The capacity of a developing country to purchase food to address hunger is limited by its capacity to pay for the food. The system is ruthless otherwise there would not be hunger and starvation at this time.

Assuming that trade rules are not going to change for the next 20 to 30 years, the HLPE needs to take into consideration that trade in food products should not be based only on profit but should give consideration to food security and nutrition to alleviate hunger and starvation.

To remain in business agricultural producers from exporting countries need to cover their costs of production. The HLPE report seems to indicate that surplus production would automatically move towards areas of the world lacking the proper quantity of nutrients. It seems to be far from the reality.

The World Trade Organization states another view about the effectiveness of the worldwide trade rules indicating that trade rules will be an important tool addressing hunger [https://www.wto.org/english/news_e/news15_e/dgra_25sep15_e.htm](https://www.wto.org/english/news_e/news15_e/dgra_25sep15_e.htm).

3. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

The intent of the report is to outline a set of high level conclusions and recommendations that will hopefully lead to concrete actions addressing starvation and hunger. To be useful, one would need to
bring those conclusions and recommendations to the level of application within each country with issues with food shortage. Usually international organizations are not dictating policies at country level. There is a need for suggesting a credible delivery process that has the capacity to perform at local level and encourage local production instead of patching gaps with food aid.

Such a program exists within the World Animal Health Organization (OIE). The model deals with the evaluation of veterinary services around the world. To date, OIE “has evaluated the quality of national animal health systems, including Veterinary Services, in more than 130 countries.” The world needs a similar mechanism for a sustainable level food security and nutrition to address issues particular present in developed and developing countries.

4. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

The report mentions the Livestock Environmental Assessment and Performance (LEAP) Partnership sponsor in part by FAO. The HLPE should make use of the knowledge available within LEAP for its contribution in formulating recommendations at country level. LEAP’s members are food related industries and non-government organizations involved in food production and trade at national and international levels. LEAP’s contribution would be key in the formulation of policies addressing food security and nutrition at a level that could be of use by local organizations.

5. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

The present report should not result in few lines of recommendations and policies formulated by high level UN executives, HLPE should work with members of LEAP so whatever good work coming out of the report will be put to optimal use at country level.

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

Food security and nutrition must be dealt with locally within each country. One model, which should be considered to address the issue, is the program developed by OIE for assessing veterinary services of the 180 member countries participating in OIE’s activities.

The main intent of the program is the improvement of the legal framework and resources of national Veterinary Services. “The Veterinary Services and laboratories of developing and transition countries are in urgent need of support to provide them with the necessary infrastructure, resources and capacities that will enable their countries to benefit more fully from the WTO Sanitary and Phytosanitary Agreement (SPS Agreement) while at the same time providing greater protection for animal health and public health and reducing the threat for other countries which are free of diseases. The OIE considers the Veterinary Services as a Global Public Good and their bringing into line with international standards (structure, organization, resources, capacities, role of para-professionals) as a public investment priority.”

http://www.oie.int/index.php?id=53#c202

“OIE has developed an evaluation tool, the OIE Tool for the Evaluation of Performance of Veterinary Services (OIE PVS Tool) in order to assist countries in determining their current level of performance, forming a shared vision, establishing priorities, and carrying out strategic initiatives. It comprises four fundamental components and 46 critical competencies. To promote and support intersectoral collaboration at the national level, OIE is also implementing OIE-PVS “One Health” pilot missions. The objective and scope of the pilot OIE PVS “One Health” missions is to assess the quality of the National
Veterinary Services relevant to the OIE Terrestrial Animal Health Code, with special emphasis on collaboration activities with the Public Health and other relevant stakeholders at the animal-human interface. Although there is still no specific tool officially recognized by WHO and OIE Member Countries for the PVS “One Health” missions, the current pilot activities use the OIE PVS Tool as a framework in that field. More information on the OIE PVS Tool and the OIE PVS Pathway can be found at: http://www.oie.int/en/support-to-oie-members/pvs-pathway/ and http://www.oie.int/en/for-the-media/onehealth/oi-e-involvement/oi-e-pvs/.

The OIE PVS Tool should be examined by the HLPE. It applies to animal health and all aspects of animal production including animal welfare, food safety, and sustainability within the One Health concept. http://www.oie.int/for-the-media/onehealth/

The strength of the program is its capacity to be delivered locally while serving a global mandate. Local experts in the area of livestock production are responsible for the delivery of the program. The model developed by OIE could be expanded to other experts in the area of food security and nutrition. At least the OIE PVS Tool should be evaluated by HLPE.

7. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the tradeoffs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

The main problem with the report is the lack of availability of information that could have been supplied by organizations responsible for livestock commodities like dairy, goat, sheep, beef, pork, poultry and other animals of agricultural importance used for food and other services to human. Those organizations exist at international level and at country level. They are willing to contribute. It would be a big mistake to keep them from contributing directly to the formulation of recommendations and policies.

To make sure that there are no excuse for contacting them, for dairy, it is the International Dairy Federation http://www.filandf.org/Public/ColumnsPage.php?ID=23077. For beef, pork and other animal producing meat one could refer to The International Meat Secretariat http://www.meat-ims.org. For poultry one could contact the International Poultry Council http://www.internationalpoultrycouncil.org/index.cfmj;jsessionid=29965DFC9AABEE275B7EEF2E2B78013Bcfusion?CFID=6301737&CFTOKEN=cd8384139647cd43-0E8685C8-D510-230D-2D7F94CF8B091EC5 for poultry meat and for eggs the International Egg Commission https://www.internationalegg.com/corporate/index.asp. For animal health one could contact the global animal medicines association Health for Animals http://healthforanimals.org. For animal feeds, one should consult with the International Feed Industry Federation http://www.ifif.org.

A practical example is the Dairy Sustainability Framework http://dairysustainabilityframework.org and its Global Dairy Agenda for Action. The framework includes more than forty dairy organizations with membership at country and local level along with members of the entire dairy food chain.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.


Documenting the role of women in food security and nutrition should be expanded. The development of the dairy industry in India could be used as a model for other initiatives. The report makes strong points about the role of women in ensuring food security and nutrition. It should be part of each relevant policy addressing the different steps in the food chain mainly in the area of production.

9. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

The Sustainable Agriculture Initiative (SAI) Platform “counts over 70 members, which actively share the same view on sustainable agriculture seen as "the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities, and safeguards the health and welfare of all farmed species". Members also jointly work on achieving SAI Platform’s 2020 Vision.” [http://www.saiplatform.org](http://www.saiplatform.org)

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

The issue of food security and nutrition must be addressed locally within each country. The countries that can afford exporting food will continue to export for profit. Importing countries will continue to import at a competitive price. Countries that cannot purchase food to meet their nutritional needs will have to develop sustainable agricultural systems to meet the nutrient needs for their population otherwise the situation that HLPE tries to solve is not going to be improved.

The HLPE should consider formulating recommendations addressing mechanisms such as the one OIE has developed for animal health and veterinary services which will overview the organizational needs of individual developing countries. Local experts need to be supported and local governments need guidance from a world organization similar to OIE.

11. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

National and international organizations representing commodities are knowledgeable of the situation of food security and nutrition in their individual areas. Those organizations need to be involved and made accountable to arrive at the right set of policies for local government to meet their particular needs. HLPE needs to involve the parties that will deliver food security and nutrition at the working level.

12. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.
As stated earlier, the main problem with the report is that information that could have been supplied by organizations responsible for livestock commodities around the world is not available in the first draft. Hopefully this information will be available in simplified future drafts by involving the right experts.

78. Decent Rural Employment Team, FAO, Italy

The Decent Rural Employment Team of the Food and Agriculture Organization of the United Nations provides inputs to address question 8: The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self-employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

Brief summary of a case study in Ethiopia

The Food and Agriculture Organization (FAO) will soon publish a case study on the level of decent work deficits (as defined by International Labour Standards) in the small ruminant value chains in the Ethiopian highlands, which highlights the challenges and issues faced, but also the opportunities to achieve decent employment. The case study is part of a broader programme of work that FAO is undertaking to extend the application of labour standards to agriculture and rural areas, and specifically informs an FAO project to “Reduce poverty through job creation along small ruminant value chains in the Ethiopian Highlands” in order to ensure evidence-based policy and programme interventions in the livestock sector.

This case study is the first step to fill a critical knowledge gap in the literature of employment and labour relations in the livestock sector. Research on labour standards and working conditions rarely includes the animal production and marketing. In turn, research on agricultural value chains (crop or livestock) rarely considers employment and working conditions. The case study seeks to contribute to filling this gap.

The research focused on selected categories of International Labour Standards (ILS), relevant to the Ethiopian context and based on a literature review and a preceding rapid assessment of Ethiopian small ruminant value chains. Five ILS categories were selected: i) Equality of opportunity and treatment (gender) and ii) child labour, and in terms of working conditions: iii) Occupational Safety and Health (OSH), iv) earning and standards of living, and iv) working time.

A mixed-methods approach was used combining qualitative and quantitative research, the latter with a representative sample of 1,112 value chain actors.

The case study yielded a range of highly interesting findings, which will be available in detailed descriptive reports before the end of 2015. A few highlights include:

- Ownership and control of income is heavily dominated by men, usually aged between 25-65 years. Women – even if owning animals – face considerable challenges to receive a fair return on their output, mainly because they are socially restricted to act as sellers in livestock markets, and thus rely on men to achieve fair prices and income.
- Technical productivity is very low in the sector, and there is much room for improvement in terms of animal health, breeds, feed, as well as adoption of commercialised / market-oriented techniques (incl. animal fattening).
- Work in small ruminant production is highly labour- and time-intensive. Young men and boys typically face the highest work burden and are required to spend long hours herding animals.
- Incomes and profits are very low for small ruminant producers, especially for smaller producers and female-headed households. The animal production is subject to stark economies of scale with regard to labour productivity, and larger producers are able to yield much higher profits per labour unit expended.
- Decent work deficits are prevalent, namely gender discrimination, high occurrence of child labour, exposure to harsh weather conditions, corporal punishment and social stigmatisation for young boys and men in case of lost animals, and long working hours that affected many people, in particular women and youth.

On the basis of this evidence, the case study will also propose a range of recommendations for policy and programme interventions towards improved employment outcomes in Ethiopia’s small ruminant sector.

- Decent rural employment for food security: A case for action
3.1 Social sustainability challenges

3.1.1 Employment and working conditions

Generating employment and improving working conditions is a key driver of both social and economic sustainability. Even if mentioned under the social sustainability challenges, we suggest to explain further and highlight the economic implications regarding employment and working conditions. Creating employment can end poverty and food insecurity. Employment, including in small-scale farming or livestock keeping, and primarily for extremely poor households, takes the form of wage incomes outside the family farm. These jobs, in and outside agriculture, are required for the survival of most poor rural households across the globe. Employment therefore contributes to social sustainability as well as economic sustainability:

Work in the livestock sector is mostly informal and unregulated, and as International Labour Standards are poorly implemented in rural areas, the challenges are further aggravated. Generating employment and improving working conditions in the livestock sector, including the absence of child labour, higher incomes, occupational safety and health, and non-discrimination in terms of gender also has economic implications (ILO, 2015). Further social and economic dimensions to consider in the livestock sector are the limited coverage of social protection in rural areas, low levels of labour productivity, resulting from the time-intensity work and the low gains of livestock keeping, and also the economies of scale, which are a disadvantage for small livestock producers unless they adopt commercialized and market-oriented production techniques.

Having decent, well-paid and secure jobs, can translate to higher incomes, increased consumption, reduced migration, increased human capital, amongst other key contributors to economic growth. Decent Rural Employment in agriculture, including livestock, is a driver of growth, and thus, rural poverty reduction.

The livestock sector, regarding production, focuses on issues of productivity, marketing or value chain development, without accounting for employment. The limited information and data on reemployment, results in a lack of understanding of the opportunities for employment creation, income increases and improvement of working conditions throughout livestock value chains – a knowledge gap yet to be addressed. Generating employment and improving the working conditions in the livestock sector is fundamental for a sustainable development of agriculture.

58.

Child labour in the livestock sector is impeding the sustainable development of the sector and perpetuating the cycle of rural poverty. We suggest to therefore, update the provided date and provide a more comprehensive overview of the situation. Specifically:

94 A ROUGH GUIDE TO VALUE CHAIN DEVELOPMENT: How to create employment and improve working conditions in targeted sectors (ILO, 2015)

95 Perspectives on labour economics for development (ILO, 2013)

96 FAO's applied definition of decent rural employment

97 Guidance on how to address decent rural employment in FAO country activities (FAO, 2010)

98 An important and prominent example is an ongoing research project on Small Ruminant Value Chains in Ethiopia, which is being implemented by the CGIAR consortium (link).
Of the 168 million child labourers worldwide in 2012, about 60 percent, or 98 million, were engaged in the agriculture sector. Boys and girls are involved in livestock activities and generally children are working as unpaid family workers. Children start as young as the age of three or four herding and caring for livestock. For instance, in Lesotho one in five boys are herders, starting at the age of three or four, and never going to school (FAO, 2013). Children are involved in feeding and cleaning animals, collecting fodder and water and working with draught animals for ploughing among other activities. Children also work in poultry (on farms and in their homestead), dairy production, slaughterhouses and other meat processing operations. Not all activities undertaken by children in the livestock sector are considered to be child labour activities.

Children’s engagement in livestock often carries cultural and social significance, especially in pastoralist communities. The problem is when children are undertaking hazardous activities that are likely to harm their health, safety or morals, or when the activities are an obstacle for the child’s education.

Although detailed and systematic information on the scale and areas of child labour in livestock is limited, reports reveal that children’s work in the livestock sector is generally difficult to combine with education, with many children dropping out of school or never attending school. In addition, children’s work in the livestock sector can be hazardous as children work long hours in extreme weather conditions, in isolation, use chemical products, work with large animals that can harm them, risk exposure to animal diseases and inhalation of livestock dust, are at risk of being punished by employers and experience psychological stress resulting from fear of punishment, fear of raiders or a feeling of responsibility for the family capital or property damage. (FAO, 2013). For instance, in Ghana, boys herding cattle worked 10–12 hours a day (FAO, 2013). Part of hazardous child labour is undertaken by adolescents aged between 15 and 17 years of age, who are legally permitted to work but are yet considered child labourers given the hazardous nature of their work. This means that addressing the hazardous work undertaken by 15-17 year-olds, could transform a situation of child labour to one of decent youth employment.

The report mentions that it is important to make farming more attractive to young people. We suggest to also explicitly mention the opportunities to create decent youth employment in the livestock sector:

- **The vast majority of them live in less developed countries (89 percent) where the majority lives in rural areas (UNFPA, 2014). Therefore, despite the rural-urban migration trend, the livestock sector can still be an opportunity of decent employment for youth living in rural areas. Promoting and creating decent youth employment throughout livestock value chains can contribute to economic sustainability.**

To emphasise further employment as a driver of economic sustainability, the notion of wage work and its particular relevance for very poor, food insecure people, must be strengthened in the report. The focus of wage work must be broad. If the focus remains only on smallholder farmers or pastoralists, the very poor households relying on wage work to feed their families, are missed. Similarly, larger farmers must also be considered, as they might be in the position to create the required wage employment in local communities.

Therefore, we provide two key sources for your consideration regarding wage employment:


100 [Hazardous child labour: work that can harm the health, safety or morals of children, according to ILO C 182 on the Worst Forms of Child Labour (FAO's applied definition of decent rural employment)](https://www.fao.org/3/a-a4687e.pdf)

101 [The State of World Population 2014: The power of 1.8 billion: adolescents, youth and the transformation of the future, UNFPA 2014 (in the 48 least developed countries, the majority of the population is under 18 or 19)](https://www.unfpa.org/sites/default/files/asia-pacific/2014/state-world-population-2014-world-report-population-1280962840.pdf)
Wage labor, agriculture-based economies, and pathways out of poverty: taking stock of the evidence: A recent report on wage labour in agriculture-based economies and how it opens up pathways out of poverty. It provides a decent overview of the literature, as well as a good first look into the subject area. The report highlight that wage work is the most important form of livelihood for highly poor households, who more often have no other assets to rely on other than their labour power. It also explains often-held misconceptions, statistical deficiencies and lack of data, as well as what types of jobs can make a different for poor households.

Rural Wage Employment in Developing Countries: Theory, Evidence, and Policy (Amazon link): A recently published book on the subject of rural wage employment, that offers a wide range of African, Asian and Latin American case studies. The introductory and concluding chapters by the editors also serve as powerful summaries of the topic. (Ref for citation: Oya, Carlos, and Nicola Pontara, eds. 2015. Rural Wage Employment in Developing Countries: Theory, Evidence and Policy. 1 edition. Routledge)

4.4 Responses

Social challenges

Responses:

- Suggest to include a response to child labour:

63. Prevent and reduce child labour in the livestock sector and supply chains.

- Suggest to rephrase/move the following responses:
  - Set and enforce minimum standards for workplace safety → Set and enforce minimum standards for workplace safety and health, for youth, women, and men.
  - Ensure equal pay for equal work → Suggest to move this response under responses for economic challenges. Equal pay for all workers will have a direct impact upon incomes, and hence will have broader economic implications.
  - Increase rural job opportunities in small and medium enterprises and related activities → This falls under responses for economic challenges. Also suggest to rephrase: Increase rural job opportunities, also for youth, in small and medium enterprises and related activities.

D R A F T Recommendations: Responding to critical challenges to 23 SAD for FSN

Social

- Enhance efforts to harness the agriculture sector (and associated occupations) for development opportunities that underpin livelihoods for poor and marginalized people, focusing especially on the working conditions, situation and safety net needs of:
  - smallholders;
  - wage workers and migrant workers;
  - children and vulnerable or disadvantaged women → These population groups face different challenges and the issues should be addressed as such. Therefore, we suggest to separate the bullet point into: i) children and youth and ii) vulnerable or disadvantaged women

- Enhance data collection and sharing on key social issues, in a gender-sensitive way, such as on employment, especially regarding the informal sector and on working conditions. → Data gaps that depict the rural situation and provide quality evidence-based policy advice, is limited. Therefore, data collection on various population groups is required. Suggest to rephrase: Enhance data collection and sharing on key social issues, in a gender-sensitive way, also on employment, especially regarding the informal sector, wage employment, and on working conditions, and disaggregate data by age and gender.

- Integrate a recommendation to address child labour:
Integrate measures to prevent and reduce child labour in livestock policies, programmes, and strategies, whilst maintaining the identity of the communities. For example: addressing hazardous work undertaken by children, awareness raising at community and household level, promoting access to relevant and practical education and vocational training, and strengthening collaboration with other key stakeholders for the prevention of child labour.

See [Children’s work in the livestock sector: Herding and beyond (Leaflet)](#) for more detailed recommendations.

**Economic**

- A key missing economic component is employment. To support economic growth and development of the agricultural sector, decent employment, also for youth, in rural areas must be promoted and created. Especially with ageing farm populations worldwide, agriculture needs young people. Rural youth face serious barriers to accessing productive and gainful employment in the agricultural sector, including livestock. The livestock sector has a strong potential to contributing to sustainable agricultural development, this potential is multiplied when employment in livestock is also part of the equation. Suggested recommendation:

  - Provide policy support, institutional development and technical solutions to promote and create decent rural employment in the livestock sector, also fostering youth employment in the sector.

79. Oliver Mellenthin, Permanent Representation of the Federal Republic of Germany, Germany

Comments on the HLPE Zero Draft (V0) and consultation

“Sustainable Agricultural Development for Food Security and nutrition including the Role of Livestock”

by the Federal Government of Germany

Germany highly welcomes the opportunity to comment on the HLPE V0-Draft that aims to explore how sustainable agricultural development, in particular in the livestock sector, can contribute to achieving food security and nutrition (FSN) by outlining the possible responses and pathways to address the main challenges involved. Its intention is to provide recommendations that policy-makers and stakeholders should consider.

The paper (provides a good overview of the role of Sustainable Agricultural Development for Food Security and nutrition (FSN) and, thus, a solid ground for the development of a comprehensive and valuable study.

I. General remarks

1. The description of the status-quo, which seems to be necessary for developing pathways and responses, remains relatively superficial. A more sophisticated and more detailed view seems to be necessary. Generally, the report should be better focused and streamlined. The existing redundancies and the in parts lengthy definitions – caused by the early stage of the report – make it difficult to extract the major insights of the study. In addition, the report could be better structured. The descriptions made in Chapters 1, 2 and 3 switch between regions (developed, developing), production systems, market situations, etc. The missing specificity makes the results and thoughts somehow arbitrary.

2. The report’s title raises the expectation for the report to analyze the role of livestock for FSN more precisely. It remains open to which extent the different livestock systems contribute to each of the four dimensions of food security (availability, access, stability and utilization). Thereby, the different
livestock systems can play different roles for FSN. Though the four dimensions of FSN are presented in Figure 1, they are never used again within the study.

3. The report does not reveal the prerequisites for the sustainable production of safe food of animal origin, e.g. education and training as well as the establishment of a functioning veterinary administration at the national level as an important contributor to public health. This seems problematic as the importance of this aspect is even reinforced by the ongoing trend towards globalization. Furthermore, the idea that the sustainable provision of safe food is not possible without healthy animal populations should constitute a central point of the paper.

4. The term food security and nutrition should be used consistently. At some points, the report uses the expression food and nutrition security.

II. Statements regarding the questions raised on pp. 2-3

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

   a) About 40% of the total agricultural output is based on the livestock sector, which implies that still 60% of the agricultural output is related to the non-livestock sector. Obviously, the livestock sector is one of the major aspects when aiming to achieve FSN. But the role of other sectors (vegetables, fruits, coffee and cacao, etc.) should be (more) recognized and involved when dealing with FSN. Moreover, the cultivation of vegetables, fruits, etc. usually has a large impact to the environment and should therefore be regarded as an aspect of a sustainable production.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

   The major trends and challenges are clearly defined and described (cf. p. 59). Nevertheless, some improvement is needed:

   a) One assumption in the study is that livelihoods will improve by keeping livestock. What about the competitiveness of smallholders in liberalized markets? - It is to bear in mind that the real price level is declining (p. 37). Is the gained increase in purchasing power used for substantial improvements in FSN, especially malnutrition? From this point of view, a further market integration could, in the short to medium term, lead to less FSN. For some regions, slower market integration could be preferable.

   b) The exchange of knowledge and the diffusion of know-how is a neglected point. The exchange of knowledge could prove viable to reduce the yield gap, the efficiency gap and the environmental gap. Additionally, the role of research is underrepresented. Facing climate change and desertification of land, there has to be further research in the field of adapted varieties, different cultivation systems, etc.

   c) The role of cooperatives in the meat and dairy sector could be highlighted as they provide particularly smallholders with the necessary assets to produce, allow a better connection of smallholders to markets as well as strengthen their role in the value chains. In this regard, the report could provide best-practice examples.
d) Besides other resources, water plays a crucial role in animal husbandry. The water-footprint in the meat and dairy production should not be neglected (cf. the outcomes of the 42. CFS in regard to the HLPE report on water for FSN).

e) The role of property rights should be emphasized. As described for the livestock category pastoralist, property with legal certainty is significant for all categories of livestock keepers as well as for the whole agricultural sector. This includes not only land but also water (especially between neighboring countries) in line with the RAI and VGGT.

f) The contribution of breeding strategies and techniques as possible tools to meet the future needs of food security, potentially improving feed efficiency, is only marginally discussed. In particular, the role and great potential of modern genome-based breeding methods and biotechnology is not sufficiently discussed.

g) More precisely, modern breeding techniques hold the potential to improve sustainable animal production. A higher intensity in animal production may only be achieved at the expense of animal biodiversity. Local breeds should be considered for cross breeding with higher performing ones. So there is a need to sustain those and to support initiatives with this aim. Most of the breeding goals in high performing breeds have already considered functional traits which are important with regard to animal health, performance, adaptability and longevity. They have been applied in most countries with high animal welfare standards. Welfare issues are extremely diverse when compared globally which is also recognized in this report.

h) There are obvious conflicts between intensification and specialization on one side, and loss of biodiversity on the other. Product diversification is illustrated, and co-existence of the different strategies, e.g. industrialization and small-scale mixed production systems, is emphasized. It remains unclear, however, how the intensification, needed to reduce use water resources and environmental pollution, could be achieved in developing countries under smallholder mixed farming systems (page 35). Even though smallholder mixed systems are not suited to provide all food needed for globally increasing demand, it is recognized that they provide an important contribution to both providing food and income for poorest parts of people and to maintain biodiversity (page 43).

i) The need for activities to eradicate infectious animal diseases and zoonoses has to be stressed, as these diseases have strong implications for livestock production and trade as well as for human and animal health. So far, activities of the relevant international organizations, such as OIE, WHO or the Codex-Alimentarius, have not been included. Similarly, the report does not account for national, international or joint activities such as the eradication of zoonoses within the framework of the „one health“-initiative. Given that the report focusses on livestock, animal welfare should be explicitly mentioned. In this regard, socio-cultural and religious aspects in animal husbandry and traditional slaughtering should be taken into consideration as well.

j) The statement on page 34, line 25 that „intensification of animal production is not necessarily associated with the industrialization“ is very important but not continuously considered in Chapter 4.

k) Furthermore, the role of alternative, sustainable sources of animal proteins could also be considered taking into account their implications for supply and demand of traditional products of animal origin.

l) The text contains information about the recently agreed SDGs (page 16-17, lines 50 – 2). An indication of which role livestock production could play in achieving the SDGs and how international actors could be involved is missing.

m) So far, the report consequently ignores the Leader’s declaration (G7 summit) concerning „neglected diseases“, antibiotic resistances or international initiatives under the umbrella of „one health“(cf. public health, global health). The latter refer to agricultural production and animal
diseases/zoonoses, which play an important role for FSN based on food of animal origin even now and will increasingly do so in the future.

n) Climate change as well as international trade (namely the transportation of agricultural goods in a globalized economy) imply the spread of invasive animal populations, which may result in the transmission of non-indigenous infectious diseases (vectors). These new diseases (epizootic pathogens and zoonoses) have the potential to drastically endanger human and animal health as well as livestock production. This also implies a risk in the provision of food of animal origin. Strategies to mitigate or overcome these risks are unfortunately not part of Chapter 4 and 5.

o) The topic on “food losses and waste” (page 41, line 38 ff) does neither consider livestock products nor specific quality aspects (e.g. in milk). The role of storage facilities and cold chains are not mentioned.

p) Many studies show that although prices are key drivers of consumer demand behavior, also psychological factors and the social and physical context are important for explaining eating habits. There is a large amount of literature dealing with the role of socialization, especially in childhood, pointing out that eating habits are learned in early years and are relatively stable over life.

q) The gender issue is not considered adequately (page 47), as the so-called gender gap is only mentioned in sentence 18 and consequences and challenges are not considered at all. No example is given in Chapter 4.

r) It is mentioned that the growing demand for ASF and urban livestock keeping can make important contributions to FNS and livelihoods because the majority of the world’s population now lives in cities. But it should also be asked for the situation of the rural population, which mostly is more food insecure and vulnerable than the urban population. The contributions of livestock keeping, as well as its challenges, should also be discussed in this regard.

s) The role of urban livestock production is shortly mentioned but not further elaborated and incorporated in the recommendations.

t) The role of ICT should be better highlighted. In fact, ICT will probably have much more importance than stated with implication on production (education, extension), coordination and transparency.

u) More generally, the report neglects the various successful measures and possibilities to establish specific regional systems, which have positive implications not only at a regional level but also internationally. In this regard, a more systematic approach would be helpful –including the description of concrete measures in Chapters 4 and 5.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

a) The four systems described in Chapter 2.3 seem to be comprehensive. Diversity in farm systems and ecological conditions argue for diversification of strategies to meet requirements of FSN, and each system has its own pros & cons (pages 30 - 33). These are extensively and adequately discussed.

b) The four categories are distinguished by different production systems, land use, feeding systems, farm and herd sizes, labor organization and farm ownership, as well as some more criteria. The categories, however, do not build on the same indicators which makes the comparison difficult. In this regard, the report uses a number of undefined expressions such as ‘smallholders’, ‘intensive’, ‘commercial’, ‘industrial’, to name some examples.
c) The four categories are not used subsequently in the text, i.e. for analyzing the challenges (Chapter 3) and the pathways to address agricultural development (Chapter 4).

d) In a dynamic development of livestock systems, transformations from one category to another category are relevant (e.g. from pastoralist to smallholder). The role and scope of such transformations should be elaborated. Is there a main direction of transformation to a livestock system?

e) Intensive landless systems can also be found in areas not close to urban conglomerates such as feedlots in the US or Australia, and often a relevant processing industry is associated with them. This could be an additional category.

f) Pastoralism is described rather positively whereas the focus of the assessment of intensive systems seems to be set on disadvantages and challenges. A more consistent, comparable definition and description of their characteristics would be more helpful, instead of only discussing advantages (for example high productivity in intensive systems) and disadvantages (for example overgrazing of common land in pastoralism systems, exploitation of labor in mixed farming systems).

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

a) The TEEB (The Economics of Ecosystems and Biodiversity) Study (2007-2010) looks at the sustainability, the negative environmental impacts but also the benefits of agricultural production from the EU perspective. Besides the efforts in food security, environmental services of production could also be acknowledged. This concept can also consider any regional differences (www.teebweb.org).


5. Do you think that there are other key challenges/opportunities that need to be covered in the report?

In addition to the responses to Question 2, the following challenges should be regarded and/or explained in more detail:

a) Loss of soil through development of infrastructure, building sites etc.

b) Change of landuse with regard to the environmental impact of an increasing livestock

c) Education, skills and expertise

d) Access to credit by smallholders and pastoralist

e) Infrastructure (roads, equipment)

f) Rural development: incentives for staying at rural areas (e.g. by creation of jobs in the agricultural sector)
g) The role of international trade for FSN

h) The development of livestock production with the aim of improving FSN relates to improving the functioning of the entire value chain (e.g. cold chain, processing, distribution & transportation, etc).

i) Changing meat consumption patterns

j) Worldwide differing preferences for different types of food of animal origin as well as different parts of the animal

k) The gender issue

l) Erosion

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

   a) Yes, the approach is a rather pragmatic entry into the topic. Possible pathways to sustainable agriculture are discussed and a list of often conflicting options or choices is given. The responding list of challenges is a comprehensive collection of different challenges, but it does not contain any new aspects. It could be useful for the development of adapted decision-making response approaches.

   b) The chapter misses a first reflection on how the livestock production will contribute to the achievement of the SDGs and how international actors could be involved. Could the Global Agenda for Sustainable Livestock (GALS) play a role in that? The National Appropriate Mitigation Actions (NAMAs) (page 62, line 35) are an interesting instrument which is applied in many countries. It would be helpful to include an example on the application of a NAMA as a case study under Chapter 4.6.

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

   An example on building the resilience of Turkmen pastoralists to environmental variability is enclosed (Attachment 1 http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/files/Sust-Agr-Dev-Livestock/Contributions/Attachment%201_TKM%20agriculture%20livestock%20overview.docx ).

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self-employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

   The issue of child labor is not verified yet. Although there is not much information available, the FAO publication “children’s work in the livestock sector: herding and beyond”. http://www.fao.org/docrep/017/i3098e/i3098e.pdf gives a comprehensive overview on this often overlooked subject.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?
10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

The continuous and rather open dialogue and exchange between stakeholders from different areas has crystallized out as a very promising approach for a policy initiative. The Global Agenda for Sustainable Livestock (GASL) as well as the Roundtable for Sustainable Beef (RTSB) should be mentioned as successful initiatives. The participation of the private sector as well as the NGOs’ has increased a lot which results in multilateral discussions and common sustainable initiatives.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

There is still a lack of quantitative and qualitative data concerning the informal livestock sector. Therefore the contribution of food of animal origin to the total diet is still difficult to estimate and changes are difficult to measure.

III. Further, more detailed comments

1. p. 14, line 31 to p. 15, line 5
   How can subsidies be financed for the losers of the liberalization process, especially in poor countries? Usually only rich countries can afford such subsidies.

2. p. 15, line 7
   Are only subsidies or also tariffs affected?

3. p. 26, lines 17-25
   Attention should be paid to the definitions of the systems described which can be misleading if they do not reflect the entire life of an animal. Example: Feedlots for beef cattle are defined as intensive systems but the animals usually spend only 1/3 of their life in these confinements (finishing). Two thirds of their life they would typically spend on pasture or ‘less intensive’ systems. This applies – among others - to the big players US, Canada, Argentina, Australia, Brazil and South Africa.

4. p. 26, lines 26 ff.
   It should be mentioned that apart from the different meat types produced, there are also a number of other products deriving from animals – hides and skins, blood, bones, gelatine and tallow, medical products etc. This is often ignored in the debate but provides a clear benefit from livestock production as these products constitute a value and should be replaced if livestock numbers were reduced.

5. p. 28, box 4
   The example on “the diets in the Mediterranean” () does not properly fit and is not really livestock related.

6. p. 34, line 7
   The statement that increases in livestock production will result from an expansion of livestock numbers is a contradiction to the statement that more production in developing countries will result from increases in productivity (page 35, row 10). For example, the latter has been the case for example in the Brazilian beef production. Indeed, it is quite obvious that there is an enormous
potential to increase animal performance in terms of birth rates, post birth mortality, weaning weights, milk yields, daily weight gains, feed conversion as most of the so called ‘extensive’ systems come from rather low performance levels.

7. p. 34, lines 9-15
This paragraph provides some crucial and disputed information, especially about the deforestation in the Amazon region. However, no sources for the figures are provided and with respect to Asia and Africa, the role of livestock remains vague (‘some’ deforestation can be linked to livestock).

8. p. 34, Figure 5
The Figure is not very convincing or consistent and needs major revision towards a clearer allocation of certain properties to the four categories of livestock keepers. For example, the use of dung/ slurry as fertilizer and the use of crop residues can also be found in ‘intensive’, ‘commercial’ and ‘industrial’ systems.

9. p. 39, lines 21-22
The social and cultural traditions mentioned in the subtitle are not explained in the paragraph. Further, the impact of increasing wealth in urban areas on the (neighboring) rural areas (e.g. metropolitan regions) is not pointed out.

10. p. 39, Box 6
What about the improvements in health care?

11. pp. 40
The whole chapter appears fragmentary, sometimes incidental rather than intentional. It could be improved by making a clear distinction between developed and developing markets as well as the differences in production environment.

12. p. 40, line 7 ff. and p. 41, lines 1-26
The majority of harvest will not be internationally traded and is still handled by small scale companies on local/regional level. Thus, the paper overestimates the power and market penetration of large scale international companies.

13. p. 41, lines 18-26
The description of agro-food industries does not seem to be well balanced and in general the empirical basis it is rather unclear. The aspects of cold storage and cold chain are not treated at all.

14. p. 42, lines 53-56
Organic production is also subject of government policies.

15. p. 43
The concluding remarks have only a loose connection to the previous chapters.

16. p. 43, lines 51 ff.
It is surprising that the authors provide a combination of approaches as a solution because the reason for cannot be found in the chapter.

17. Chapters 3.1.2 and 3.1.3, p. 47
Too short and without any idea about a solution. Chapter needs to be reviewed.

18. p. 48
Concerning the differentiation between objective and subjective risk perception, it has to be stated that subjective risk is perceived by consumers and can be far away from factual evidence (i.e. objective risk), but still have large impact on demand (e.g., in the case of food scandals).

19. p. 48, lines 45-51 and p. 49, lines 1-8
Very important issues but no adequate discussion. These examples would require a systematic
approach. The insurance function of smallholder livestock production system does not justify inefficiencies in the production system (Kenya).

20. p.49, lines 4-5
It is debatable whether productivity increases can be associated with a decrease in stability and resilience. Increases of productivity are possible without decoupling livestock from local ecosystems because know how, management capabilities, better breeds etc. can push productivity without environmental hazards. Intelligent approaches that take into account the local situation are the solution. Further, from a long-term perspective, dependency on markets is rather similar between different systems, labor, land and capital organizations. Family farms for example have more flexibility by forgoing income in case of low product prices but price signals are still reflected in opportunity costs.

21. p. 49, lines 13-26
Good points for the future. It should be mentioned, though, that these changes might need a long time.

Examples are:

a) German Research Platform for Zoonoses
b) One Health Initiative in the U.S.
c) One Health Platform (One Health-Conference; Amsterdam 2015)
d) One Health Commission (collaboration between the World Medical Association, the World Veterinary Association, the American Medical Association and the American Medical Veterinary Association; organizer of the Global Conference on One Health, 2015).
g) National Consortium for Zoonosis Research (GB; NWZG/NCZR Annual Zoonoses Conference on Food Safety , 2015)

22. Chapter 3.4.1. and 3.4.2.
The statement “Food security implies food safety and sustainable agriculture must deliver food that is not only nutritious but also of acceptable microbiological, chemical and physical safety” (p. 55, lines 47-48) is highly debatable and has been discussed in various commissions of the Codex Alimentarius. It remains unclear what is exactly meant by „acceptable“. This differs under the various strategies concerning animal health and hygiene.

Given the comments above, there is no agreement with the statement “But although the drivers of disease emergence have been identified (Jones et al., 2013), as there is little evidence on what practical strategies could be best employed to reduce disease emergence from or through a livestock system” (p. 57, lines 22-23).

23. 3.6. Conclusions
At a first glance, the statement “Because livestock is produced in so many ways – from backyard chicken to intensive dairy – and because it generates benefits that are valued as well as harms that need to be mitigated it is not easy – nor indeed appropriate – to develop global conclusions on the merits and demerits of livestock production” (p. 60, lines 8-11) seems to be correct.

24. p. 64, line 27
The sentence “without the large scale operations the very existence of the small and intermediate operators would be in question” is questionable and creates misunderstandings.

80. Jessica Evans, Department of Agriculture and Water Resources, Australia
Australian contribution to the High Level Panel of Experts for Food Security and Nutrition (HLPE) report on Sustainable Agricultural Development including the role of Livestock
Australia thanks the HLPE for developing a zero draft of Sustainable Agricultural Development including the role of Livestock and looks forward to assisting as the report develops. Australia considers that sustainable agricultural development which includes livestock farming has the potential to improve livelihoods and promote food and nutritional security.

The report is well-balanced in terms of its focus on sustainable agricultural development in broad terms, while paying attention to the issue of livestock. Australia broadly supports the direction of the report’s preparation and the level of attention given to the contribution of the livestock sector in contributing to food security and adequate nutrition. We note that goal 2 of Agenda 2030 includes a specific target on this topic:

- 2.4 - By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

Australia views the appropriate policy mix to support food security and nutrition through sustainable agricultural development as one which targets the immediate needs of the poorest while strengthening the foundation of long term global food security. This includes through policies to support:

- Open and efficient global markets to maximise food trade flows
- Increased focus on sustainable agricultural productivity
- Increased investment in agriculture, including research and development
- Emergency assistance and social protection for the most vulnerable.

**Opportunities from Trade**

Open and efficient global markets are important to maximise trade flows, not only of food, but also animals for breeding purposes and expertise to develop agriculture. This is particularly true where economies do not have a developed livestock sector. The value of open markets for trade in animals for breeding is particularly important given potential improvements to the quality of animal populations through the introduction of new genetic material. The report would benefit from clearer statements about the contributions trade can make in support of sustainable development, in particular in Chapter 3.

Meeting demand for livestock products through global trade is a significant opportunity. Trade in livestock products can create commercial opportunities and investment, generating growth. It can also create employment, giving people higher and more stable incomes, and therefore greater access to food. Food security will be determined by not only how communities and individuals feed themselves, but by their own ability to purchase and consume food at the lowest cost.

**Environmental Challenges**

The Australian Government has a long standing and strong commitment to sustainable resource management recognising that this contributes to food security and a strong and resilient agriculture sector. The focus on meeting environmental challenges in Chapter 4 is therefore welcome. Australian community expectations are that well-managed agricultural landscapes will deliver high quality ecosystem services such as healthy soils, clean air and water and biodiversity while also delivering food and fibre products.

Australia would encourage greater attention to the role of technology and research & development in addressing environmental challenges in the report. The report could provide a much greater overview of the existing and future solutions to increase the sustainability and resilience of agricultural systems.

While Australia supports legitimate and targeted food security measures, these should not be trade distorting. Therefore, where payments for environmental services are promoted as a method to meet
environmental challenges, it is important to include the caveat that these should be consistent with WTO disciplines.

**Typology of farming systems**

The Australian Government believes that a vibrant, innovative and competitive agriculture sector will create jobs, encourage investment and help build stronger rural and regional communities. At the same time, we do not believe that it is appropriate to encourage a specific farming structure. Whilst the report focuses largely on smallholder farming systems, it should recognise that all production systems, regardless of criteria such as size make important contributions.

Whilst Australia appreciates the four main categories of livestock keepers outlined in Chapter 2, family farming is only recognised as an element of the smallholder mixed farming system. Family farming is important to Australian agriculture – Australia’s National Farmers Federation estimates that 99 percent of Australian farming businesses are family owned. These family farms are a diverse mix of farming enterprises and come in all different shapes and sizes.

While family farming in Australia may be different in some ways to family farming in some other countries, there are also many commonalities. Australia recommends that all types of family farms, including large commercial family farms be considered. While we note the large number of small-scale family farms in the world, there are other types of family farms which also benefit sustainable agricultural development. For example, a family which owns, manages and works a cattle station of 200,000 hectares in Northern Australia makes a significant contribution in managing natural resources and producing meat to feed people in Australia and overseas.

**Soil**

The report outlines the role of soil carbon sequestration as a climate change mitigation option but care should be taken to avoid overstating this. Research supported by the Australian Government through the Filling the Research Gap programme, suggests that any consideration of agricultural soils as a carbon sink, in the context of action on climate change, should also consider the role of soils as an emitter of GHGs (N2O, CH4 and in some cases CO2). The complex interaction between sequestration and emissions and the multifaceted nature of emissions responses that can result from carbon inputs should also be considered.

**Nutrition**

Australia recommends that the panel consider the extent to which these parts of the draft report reflect the request of the 41st Session of the UN Committee on Food Security for the HLPE to ‘undertake a study on “Sustainable agricultural development for food security and nutrition, including the role of livestock.’ The report includes a number of recommendations to improve nutrition outcomes, such as food labelling regulations, which are aimed at improving nutrition outcomes but it is unclear how this relates directly to sustainable agriculture outcomes.

**Alternatives to Traditional Livestock Farming for Protein**

We suggest that the report could also consider alternatives to traditional livestock farming for protein. These could include insect farming and the farming of non-traditional meat livestock such as kangaroos.

81. Roberto Azofeifa, Ministerio de Agricultura y Ganadería, Costa Rica

Estimados Señores y Señoras.
He leído el documento titulado "Sustainable Agricultural Development for Food Security and Nutrition including the role of livestock".

Considero que el trabajo realizado es muy valioso. Presenta de manera amplia avances, experiencias, estadísticas, desafíos, problemáticas. Sin embargo hay tres aspectos que considero que son necesarios en el documento.

1. Ilustraciones. El documento presenta cuadros, esquemas, gráficos, los cuales son importantes para ilustrar y apoyar la presentación de ciertos temas. Considero que algunas secciones del documento, como por ejemplo la sección donde se describen las tipologías de sistemas de fincas ganaderas y sus vínculos con los sistemas de cultivo, así como en el caso de algunas de las cajas, es importante apoyar los conceptos e ideas con ilustraciones fotográficas o esquemas que apoyen las ideas.

2. El rol de los jóvenes. El documento es débil en cuanto a evidenciar o tratar el rol de los jóvenes en un escenario deseable de desarrollo agropecuario sostenible para la seguridad alimentaria y nutrición. Considero que es un tema que debe incluirse y plantearse al menos como uno de los grandes desafíos que será necesario trabajar en el futuro.

3. La generación de estadísticas. Uno de los campos en los que los países deben trabajar es en la generación de estadísticas que permitan medir los efectos de las políticas orientadas hacia el desarrollo agropecuario sostenible para la seguridad alimentaria y nutrición. El documento requiere fortalecer este campo, de manera que los países se estimulen a poner en marcha mecanismos sólidos que les permitan generar estadísticas en materia de producción sostenible.

Por lo demás, felicitaciones por el aporte.

Roberto Azofeifa
Departamento de Producción Sostenible
Ministerio de Agricultura y Ganadería
Costa Rica.

82. Food Sovereignty Alliance, India

Comments on the HLPE draft report on Sustainable agricultural development for food security and nutrition, including the role of livestock

From
The Food Sovereignty Alliance, India

http://foodsovereigntyalliance.wordpress.com

The HLPE Report is an affront to social movements: indigenous peoples, pastoralist and peasant farming every step of the way. Whilst an extended critical narrative will follow here are our quick key concerns:

1) Food Sovereignty: its appropriation and misappropriation

It is absolutely shocking how the report has misused the concept of Food Sovereignty. Whilst it quotes the first few sentences of Via campesinas original declaration “Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems” (pg 20 box), it fails to understand that the core of Food sovereignty challenges the entire framework of Corporate Agriculture, Food Systems, Corporate control over resources, and that Food Sovereignty is about people taking back control:

It puts those who produce, distribute and consume the food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interest and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and
directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritizes local and national economies and markets and empowers peasants and family farmer-driven agriculture, artisan fishing, pastoralist-led grazing and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all people and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, water, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations.

Via Campesina

As far as peoples movements go, there is no confusion about what Food Sovereignty means, and the supposed “debates” which is what the document wishes the reader to believe (pg 20, box on Food Sovereignty).

As peoples movements we are clear that Food Sovereignty is the only framework possible, to revision and strategise a future of how communities will meet their food needs now, for future generations and ensuring that we protect and defend the rights of mother earth. Within this, the role of livestock finds a place. The entire conceptual framework of this document is a far cry from Food Sovereignty, and hence we reject the existing entire conceptual framework itself.

2) The premise of the entire HLPE report, is no different from the premise of the Global Livestock Dialogue and their central argument of demand “There is a massive growth in demand for animal protein (milk and meat) globally, with the majority of this demand coming from the low-income and emerging economies (such as India and China). This demand, they argued is largely driven by increasing urbanization, increasing incomes and increasing populations. (essentially repeated ad-nauseum throughout the HLPE document)

and we re-iterate the critiques already made by FSA in our document ‘Dialoguing on the Future of Livestock’: available at the blogsite http://lvcsouthasia.blogspot.co.uk/2014/11/dialoguing-on-future-of-livestock-by-dr.html

The big lie of demand: the projected demands of animal protein in the global south, that form the basis of the argument of an urgent need to augment production of milk and meat industrially, need to be questioned. The big lie is best illustrated by India where the past twenty years of neo-liberal economic reforms has unleashed “Growth”, that has triggered massive and rising inequality within the country. A nearly “300 million” strong rich and wealthy India is consuming more and more meat and milk, with a large part of rest of India being permanently under-nourished; where the consumption of milk and meat is minimal. The current consumption levels of the rich Indian cannot be used as a parameter/thumb rule to project national demands. Nor can one use the completely unhealthy and medically inadvisable meat and milk consumption patterns of the global north to project future demands. In fact today there is a crying need for a reduction in consumption by the global rich and wealthy (including in India) of these meat and dairy products from both a health and environmental standpoint. Similarly peasant, pastoralist, indigenous and working class India, have the right to enjoy milk and meat (including beef) consumption according to their cultural and traditional customs and norms. In India, the existing milk produced in the country is in fact more than sufficient to meet the national milk average per-capita intake. The issue is not of production, but of access and distribution.

Further the issues of urbanization are spoken of as some evolutionary inevitable, conveniently forgetting that governments of the world are using their power to engineer and finance this massive shift from rural to urban and thus forcing urbanisation.
3) However what is worse is that they have gone a step further to suggest that the current nutritional – particular protein deficiencies of the world, particularly of people residing in the chronically nutritionally deficient regions such as Sub-Saharan Africa, South Asia, parts of South-east Asia, and parts of Latin America- can only be addressed by increasing supply and availability of animal protein i.e Meat

It is downright colonial arrogance to suggest that 2 billion people whose diets are primarily derived of crops (lines 36-37, pg 8), are deficient in essential nutrients, which must now be derived from livestock protein. It smacks of cultural insensitivity and disrespect, and speaks poorly of a UN initiative.

4) The question of availability / shortages of food and growing protein deficiency: Whilst recognizing that there is a problem of over nutrition and obesity in the global North and amongst the elite of the Global South, there are absolutely no political recommendations on the fundamental structural questions of distribution, which are embedded and has its roots in the current Trans-National Corporate controlled Global Food Systems. There is no shortage of Food, (as is reluctantly referenced here and there in the report), but there is a major question of who controls food production today, distribution and access to Food.

India’s experience is telling in this regard: from mid 1960s onwards to early 1990s, the green revolution attempted to enhance productivity and yields in crops through what is often referred to as high response agriculture. The state began to push a technology and approach to farming that laid the base for farmers losing control of their seeds, knowledge systems and diverse food farming, and wherein began the process of animal power being replaced by mechanized machinery. Upto the 1990s we were self sufficient in pulses, oilseeds, and livestock still continued to play an extremely important multifunctional role in agriculture and peoples livelihoods and directly and/ or indirectly playing a vial role in providing nutrition for people. Pulses have always been the primary source of protein for a vast majority of Indians. With neo-liberal capitalist economic reforms forced upon the people of India, in the early 1990s, by IMF and World Bank and Govt of India signing into WTO, Govt of India cut back hugely their budgets / public support for agriculture: we were forced through the various international agreements to cut back hugely on input subsidies, Minimum Support Prices, public procurement of food crops, and changed its policies so as to make it unviable for farmers to grow diverse food crops, including pulses, and switch to commercial cash crops (flowers, sugarcane, animal feed maize, soya, sugarcane, paddy, cotton). All of this has resulted in a situation today where there is massive decline in pulse cultivation in India, and an acute shortage of pulses in India, and we are importing pulses in massive quantities.

We have reduced our import duties on pulses to “0”. This will further drive farmers out of pulse cultivation. The average Indian is consuming less pulses today than they did at independence. Similar is the story with cooking oil. Where we were self-sufficient in nutritious and diverse oil production upto 1990s, today we are importing the most unhealthy and worst form of oil – palmoil, and 60% of it is imported.

Animals role in such mixed cereal-pulses- oilseed-vegetable- fruit systems, have been

i) Providers of draught / work power
ii) Providers of milk and milk products
iii) Providers of manure
iv) Providers of meat
v) Providers of future generations
vi) Transportation

The White Revolution of the mid-1970s to mid 1990s (again heavily financed by a nexus of global and national policies), attempted to replace this robust system of animals in multifunctional role, to only produce milk. Make Milk producing machines. Once again driven and financed heavily by the state. The
1990s to date have largely witnessed policies and finances that have further alienated livestock from agriculture, and pushing farmers to specialise and intensify production - the core tenets of “Livestock Revolution”: get rid of animals and primarily grow crops, or reduce crop production and specialize in animals.

Today the once robust mixed animal-crop farming system, has been replaced by monocultures. Global policies, International finance, and trade agreements to date have ensured that farmers have been pushed from rich, biodiverse, food farming systems, to monocropped commodity farming, and that farmers who are themselves consumers of food, along with others – say 70-80% of Indians are today “protein” deficient.

So massive global powers – the nexus between politicians across countries, TNCs, global financial sectors, IMF and World Bank, have shaped a scenario 25 years down the road from 1990, where farmers have been pushed away from these robust agro-ecological systems of farming- with livestock’s role therein.

It is the reason today of farmers suicides, massive departure of youth from farming, growing undernutrition, malnutrition and chronic nutrition amongst rural and urban poor, and farming families. Instead of correcting this, the HLPE takes these developments as if they happened on their own, with absolutely no role of global politics in having made this happen.

5) The questions of meeting protein deficiencies most efficiently through meat:

The second major proposition of the report, is to “meat” this nutritional deficiency. The entire argument of the report is to reorganize livestock to become merely providers of protein, completely ignoring the larger role livestock has played in agro-ecological food farming systems.

We strongly condemn this myopic vision of protein, which reduces nutrition to “meat”. Flowing from this argument of course, is the oft repeated business as usual arguments:

“To meet the protein needs with meat, we need more animals, more productivity, and more grain, fodder, to feed the animals.”

At this point we can only re-iterate what we have already written:

a) The protein needs can be met in diverse ways, including meat and milk. In India the huge protein deficiencies we witness today amongst an overwhelming number of citizens, has been directly attributed to declining cultivation and availability of staple pulses (dals), which have always been our primary source of protein. Culturally daily consumption of milk/ milk products/ meat, varies from community to community and there is no standard monoculture consumption practice. The FAO (and now HLPE) projections assume a monoculture food consumption menu, as do also today the right wing Hindutava Brigade who are dead set in forcing Indian’s to stop consuming goat, sheep, cattle, and buffalo meat according to customary cultural practice.

6) The Final completely contentious proposition is that all this increased demand of meat protein can be best met, by different “production systems” co-existing with one another, and each one improving themselves to become more efficient: economically, ecologically, resource use, productivity.

Today the monster of global capital and corporate agriculture including livestock is fully supported by rulers of the world, and has impacted and cannibalized upon all other systems of peoples livestock rearing: Be it pastoralism, indigenous peoples livestock rearing, or small peasant mixed-crop-livestock food farming systems.

There is the march of global industrial corporate system of production (referred to as Intensive livestock farming), distribution and consumption on the one hand, and its aggressive monopoly of the entire value chain from production to the plate.
Rapidly laws and changed and trade agreements signed up which is facilitating the transfer of control of to the corporations:

Land, water, air, genetic material, disease and health care, labour, knowledge , markets and at the end consumers

Today the small holder is completely impacted by the TNC: either because their land and resources have been snatched away, or their genetic material has been insidiously replaced by “high producing” genetic material pushed aggressively by the corporations via state development programs in to small farmers farming systems (eg Holstein Friesans and Jersey becoming the primary breed of milk production globally). Or another instance: Today govs have encouraged the growth of industrial poultry production, and in turn created a demand for animal feed, in turn forcing small farmers to cultivate monocrop maize as animal feed on their fields.

In the meat markets of the world:

2 massive corporations control broiler poultry genetics globally (Hendrix Genetics, Grimaund)

2 massive corporations control layer poultry genetics globally (Erich Wesjohann, Hendrix Genetics) similar the story of pig

Hence the insidious arguments of “intensification” imply and we have seen happen, is that small farmers get contracted in by local integrators, and their labour, land, resources of the small farmer is used to rear the genetics supplied by the corporations. The genetics is not controlled by the farmer at all. The farmers loses their independenc and control and has to produce for this larger global corporate controlled market. Farmers becomes a provider of labour.

When the former predates on the latter, where is the question of co-existence?

A clear example of the destruction of small farmers , as a result of sustainable intensification and vertical integration into the industrial markets, is evident in the recent crises of Milk, not only in India but globally (please see our brief of this at our blog site https://foodsovereigntyalliance.files.wordpress.com/2015/10/milkcrisesdialogue_preparatorynote.pdf. Our extended report will be made public shortly.

7)The propositions on need to intensify, vertically integrate, and that intensive systems are less GHG producing than small farmers and extensive systems, have already been challenged in our paper “Dialoguing on Livestock”- (see attached the paper)

When the cause of all the mess in the world of agriculture livelihoods, production, coupled with nutritional deficiencies , is global capitalist industrial corporate agriculture, then there is no way that we can continue with this framework like “business as usual”.

Finally our counter proposal:

I) Begin with a Food Sovereignty framework and reposition livestock’s role therein to meet food demands of 2050, using agro-ecological practices.

II) There is no question of co-existance of a corporate industrial system along with peasant , pastoralist, indigenous peoples food farming systems and peoples markets. How will the world look and meet its needs without corporations, and with decentralized, localized, people controlled culturally appropriate and just systems of food farming based on agro-ecological principles.

Submitted by the Coordinating Council of The Food Sovereignty Alliance, India

1. Mr Sidham Shambu, Telangana Adivasi Aikya Vedika
2. Mr Kunjam Pandu Dora, Andhra Pradesh Adivasi Aikya Vedika
3. Ms Murugamma, Dalita Mahila Sangham
4. Ms Susheela, Dalita Mahila Sangham
5. Mr Chiguri Yelliah, Deccani Gorrela Mekala Pempakadharula Sangham
6. Mr Adinarayana, Sri Gopi Rythu Sangham
7. Dr Radha Gopalana
8. Dr Sagari R Ramdas

November 2015.

83. Akila Saleh, Food Security Information Center, Egypt

1. The report striking the right balance between agriculture development and the live stock sector specifically with respect to their relative contribution to FSN.

The report is comprehensive covering a wide range of challenges to be faced in the future.

2. Nutritionally it is mentioned in the report (1.4 sustainable agricultural development for FSN: the key role of the live stock sector), the importance of animal protein food meat, milk and eggs in compacting malnutrition and wide range of nutritional deficiencies, the consumption difference between developed and developing countries.

In the same paragraph it is mentioned the relation between meat consumption (especially red and processed meat and cardiovascular diseases some cancers and diabetes).

I hope that reasonable amount of meat consumption could be advised in the report for covering nutritional needs without affecting health.

3. The development of animal production in developing countries needs involvement of all stakeholders public, private and NGO’s, as mentioned in the report.

The role of NGO’s is essential and needs to be highlighted in the report.

Example of what is running now in Egypt. The establishment of MisrElkheir and other organizations to help the poorest villages and gender in rural areas in the field of animal production beside its other activities.

MisrElkheir organization established a company “ArdElkheir” in 2009 for marketing products for small and medium income generating projects. in the year 2011. ArdElkheir became one of the most important companies for animal production, meat and milk, it own four farms of five thousand dairy and fattened animals.

The company delivered 6287 animals to MisrElkheir organization to be distributed to 6287 families in the poorest villages, and conducting training programs helping them in management and feeding and also with veterinary service.

The cost of animals is 11,000,000 $. the organization also distributed 12071 tons of feed to the families costing 5,000,000 $ during the period from 2011 to 2014

4. MisrElkeir animal production project for gender:

The organization established three farms financed by united nation with 300,000 $ for one year from 2012 – 2013. The farms are managed by gender.

The first one include 170 cows, managed by 40 women,
The second include 40 cows managed by 25 women and the third include 25 cows, managed by 15 women.

All women have been trained for breeding, management and feeding.

MisrElkeir is a good example for describing the role of NGO’s concerning livestock.

Dr. Akila Saleh
General coordinator
Food Security Information Center

84. Bratindi Jena, ActionAid, India

Feedback is limited to one chapter Environmental Sustainability – Page 52 – 55 of HLPE Report

3.3.1 – GHG Emission from livestock

The information shared here show as if a lot of emission is caused due to livestock. We are using livestock for our own benefits like food, manure, clothes (woollen), cosmetics, for commuting...a long list. Often livestock is the only source of survival for families in some part India, Pakistan and Nepal. It will be good if we can look at this part to be kinder to our livestock.

3.3.2 - Land

Pasture commons is an important area that needs protection from encroachment by the government and corporate (infrastructure and other forms of development activities). Now government claims ownership on all land that does not have an individual record of rights. Because drive to get Foreign Direct Investment (FDI) for putting up industries is so high that livestock are losing their rights to graze freely on the commons. For indigenous varieties of livestock mobility is more important than the feed. If you see the entire arid zone (deserts) community economy is based on commons and there are tribal/indigenous communities who live in the commons and move from one area to the other depending on availability of green fodder. Now all those communities face threat to their livelihoods and traditional skill extinct. This includes communities like Raika (camel tenders) from Rajasthan, Gujarat (India) and Gaddi and Gujjar (mountain shepherds) from Himachal Pradesh (India). Protection of pasture commons will help healthy growth of livestock and dependent communities’ survival.

3.3.3 – Water

Contaminated water is damaging the health of livestock and destroying pasture commons. Often industrial waste – red mud and ash water (chemical contaminated refinery waste) are released on grassland, when livestock graze they get foot and mouth infections. It is important to protect livestock from contaminated water as the same would travel to human body through food products.

3.3.4 – Climate Change

Livestock suffers from climate change related effects like untimely thunder shower, lightening and hail storm. Tsunami, floods and droughts are on increase. This is on increase across the South Asia region in different parts, especially Bangladesh and India. Indigenous variety of livestock suffers the most from such unexpected and untimely natural calamities.

Large patches of pasture commons are getting severely affected by these natural calamities, resulting in shortage of green fodder and increased price of dry fodder.

85. Bhubaneswor Dhakal, Nepal

Dear Moderator
At a quick glance I found the HLPE’s report impressive in terms of wording and interpretation. The background part is presented in very appealing language which might have given a very good impression about the report to many readers. When I constructively analysed its substances, -based on my theoretical knowledge and experiences about the subject matters, I found many issues and doubted on intension of the report. Some of the problems of the report are as follows.

An improvement area on the methodology part: The outcomes of livestock based sustainable food security and nutrition are largely depend on modalities and degrees of interactions of multiple elements of social, economic and environmental systems. The phenomena of changing inputs into outputs can be called a process. The report has attempted a few process level phenomena to explain the FSN problem but these are not insufficient. The problems and solutions associated with the complex livestock based food production systems, therefore, could be better explained in the analytical framework that includes a process element.

The report justified subsidy as a factor driving farming inefficiency and problem of economic sustainability. Market approach is considered as a magic tool for the problem. From my understanding the arguments on the policy tools are partially true. It means not always true. The actors in the agri-economic world are different in strategic positions and needs due to different in access to technologies, resources and other supportive institutions. The actors in weaker position cannot compete or sustain their business and way of lives without some support. They need supports until the economy reach to a sustaining threshold level. Subsidies are different in modalities and governments are paying to the farmers in need indirectly even in the country that the commission reported subsidy free and competitive farming. If the government of developing economies follow subsidy free policy approach the livestock based food security and nutrition will be further worse or remain stagnant in those countries.

Citing a report of World Bank, the HLCF stated that the subsidy benefit mostly to rich farmers and a little to poor. The finding or argument is a flaw. The problem arise if the policy is designed and implemented based on the principle of one size fit all. From my understanding, the outcome of the subsidy is more related to the problem of designing and implementing the policy modality. It the subsidy policy had had designed and implemented targeting specially to people in socially disadvantaged position it would make a notable difference to the needy people and but little to rich. It is a big blunder to follow such controversial arguments and reports based on their influences in global financial/economic policy. Some people of such agencies often make such argument to achieve their vested interests. Others do due to wrong understandings or poor studies. This report requires avoiding uses of such controversial arguments which are used to conclude many policy recommendations.

This report has missed many critical and emerging issues of livestock farming in developing countries. For example it has missed the forest resource complemented livestock farming system which is a common practice in many Asian and some African countries. Forest resources are vital to sustain the farming systems and livelihoods of forest based communities. Geophysical condition and agroecological environment resulted to adopt and evolve the practices in some communities or regions. Policy on privatization of land area and availabilities of their resources are historically determined the traditional land use practices. However, the practices are considered bad by influential people of many international organizations and western who shaped the international and national policies for environment management and forest products and services supplies to urban areas. The people or agencies are ceasing the use practices and livestock systems. Even FAO development support policies and practices have also hampered the system. If the HLPE-FSN is aware of the issue I advise to read a journal article on The Local Environmental, Economic and Social Tragedies of Managing Community Forests for Global Environment Conservation: A Critical Evaluation. 2014. The Open Journal of Forestry. 4(1):58-69. The policy and support practices have severely hampered the business, opportunities, and wellbeing of the resource based people. Neither nomadic and crop - livestock mixed system can represent it. Similarly the report has also
ignored mountain livestock farming system which has also some special features and importance. Supply of livestock feed could be increased by improving forest management and improving resource distribution practices in critical scarcity seasons and needy people. This issue is overlooked. It looks the expert team is not interested on this issue.

One of the emerging problems of livestock farmers in developing countries resulted due to conversation of communal pasturelands and private lands into forestry. Some subsidies and other policy interventions given for afforestation contributed to convert the grazing lands into the forest. The increase in forest areas in India, China and Nepal are the outcomes of the land conversion. The resource based livestock are decreased. Current international policy for carbon emission offset (e.g. REDD forest policy) and expansion of wild lives national parks/reserves are also hampering the livestock business in many developing countries. FAO experts are well familiar with data/the information and problems. The impact of the policy affected livestock based food security of poor, women and indigenous people. The issues are little stated in the report. This evidence also caste other doubt on the intension (who are hidden beneficiaries) of the report.

The report has little recognised the contribution and emerging problem of livestock business of smallholders in biodiversity conservation in broader agricultural landscape level. The farmers followed special practices for centuries which contributed in the development of socioecological systems and sustaining the agrobiodiversity. Livestock hostile national and international policies on land uses have hampered the livestock based biodiversity greater landscape level. For example, agri-cultural environment to grow and sustain many indigenous varieties of vegetables and crops are deteriorated due to declining of livestock manure and increasing use of chemical fertilizer in crop field. Exotic weeds and other invasive plant species are also increased in mountains and other forest areas of Himalayan regions due to decreasing access to grazing in forest and alpine pasture resources and seasonal mobility of herds between agro-ecological zones. In addition some indigenous breeds are at the risk of extinction or disappears from many communities. The gene pools of the species could be conserved if alternative breeding and institutional policies were introduced. Smallholders are custodians of the indigenous heritage and a considerable number of people have heritage conservation stewardship. Current both national and international livestock development and support related policies have spoiled the social assets. This report has poorly explained the conservation issues, opportunities and approaches.

Livestock management problems of mountain areas are completely neglected in the report as the Abbidash (?) meeting of international communities ignored/avoided in September 2015 the mountain development agenda in 17 Sustainable Development Goals (SDGs) for 2030. Currently some of international agencies are strategically destroying indigenous systems of mountain livestock farming systems. They have provided misleading information and advices on policy formulation, funds for achieving their objectives and incentives to key players. These facts indicate prejudices of international agencies on livestock farming systems of mountain communities. The prejudices also found with the working team of the report.

This report has focused on conventional system based livestock farming and undermined indigenous people’s rights and existence threats. The ethnic groups requires naturally grown low fat meats (e.g. sourced from fisheries, wild animals and naturally grown pasture. The report as international development agencies are deliberately intervening national policies and introducing conventional farming systems which have hampered indigenous livestock farming and access to low fat animal product. The people are persistently suffering in mass even in many developed countries with indigenous people (e.g. USA, Canada, Australia and New Zealand). Some of the indigenous ethnic groups (e.g. Nepal and India) are at the risk of extinction due to lack of pragmatic policy. The problems are caused by restricting access on traditional foods and mediating to consumption of the foods products based on conventional systems. The food and nutrition related problem is more related to national and international policies
than resource scarcity. The policy actions are against international agreement of indigenous people’s rights. The action can be termed genocides (UN Declaration on Indigenous People’s Rights 2007).

The main area of the report is to provide guidelines and rich and quality information to make improvement in international policies on livestock development for sustainable farming. Based on my experience and understanding the report may hardly make difference in livestock development policy of developed countries but it could make significant differences on those countries policies on supporting livestock development in developing countries. For the purpose the report requires to find and explain important issues of developing countries explicitly. The report has excluded many critical points and made others not clear.

The report stated that “[A]ttempts have been made to upgrade the fodder quality of crop residues by chemical, biological and physical treatments, but few of these interventions have been widely adopted” but it has not recognised potential of the feed quality improvement of crop residuals at genetic aspect.

Crop-livestock mixed farming systems areas requires livestock business friendly crop breeding policies. But current international policies and practices on crop breeding and supports are antagonistic to the crop-livestock mixed farming systems of smallholders.

The report over emphasized on climate change mitigation problem but low value on other environmental problems. One of the main reasons to give low values in livestock development and support at current international agenda is climate change policy. Some of international policies on climate change mitigation have hampered livestock based farming systems and disadvantaged to poor farmers. The report is silent about the international vision and policies.

Social implications of some international and national policies on climate change related problems (adaptation and mitigation) vary between smallholders (farming for livelihoods) and large scale commercial growers (running business for profit motive). The report has not explained approaches that could help governments and other support agencies in formulating and implementing the climate policies and result fairer outcomes between the livestock business groups.

It would be more informative if the report would show comparative statistics of per capita livestock based GHG emission in both developed and developing countries and under different kinds of policy supports on livestock farming.

The report has over valued economic efficiency and undervalued distributive issues of different modalities of livestock policies in recommendations.

One of the policy approach to ease life of smallholders and indigenous people is scarcity of pasture resources in critical scarcity season. Pasture management plan and some technical support could alleviate the problems but this report has poorly recognised the problem in analysis and policy recommendation.

The report poorly explained problems and women and children in livestock based communities. Most of the explanations of problems and solutions on livestock based sustainable farming related to women are also based on western values and understanding. If the problems were looked constructive view and pragmatic way the report could be more interesting, informative and useful. The strategies that increase income and social benefits of women are only highlighted in objectives and poorly looked at explaining approaches and recommendation. Blamed only the traditional institution but bypassed the problem exuberated by policy and other interventions of international development agencies and governments. There are many other policies of international organizations including FAO that have contributed to further marginalization of the social groups. Excluding the policy issues further supports doubt on the quality and intension of the report.
Migration and cultural assimilation has changed people’s preferences and consumption of food types in developed countries and contributed on slowing down of increasing rate of meat consumption. Cereal food (rice and pasta) has substituted the meat. The issues are not acknowledged.

Animal based foods are considered socially high value in most society. Adequate access of the foods would provide social satisfaction to those who value the foods. This issue is different from equity in availability of adequate food and nutrition. The issue of social inclusion and equity in meat consumption is not well stated in the report.

The problem resulting trade-offs and synergies relationship on environment, economic and social dimensions requires compromise solution. This report has not explicitly and adequately explained and points the approaches and areas that requires compromise solution.

Some case studies are also miss leading and little helpful. A team with professional integrity would not use the case study, for example, of biosecurity of livestock related Australian aborigine. It is because many policies related to food security and nutrition (especially animal foods) have resulted poor health (persistent suffering in mass) and affected indigenous people’s rights and cultural values. They have loss access to low fat animal products due to closing their original residential areas, wild life conservation policy and forceful assimilation to European culture (read case studies of stolen generation). Australia has others interesting cases and more useful lesson learning about livestock farming such as dryland pasture and livestock management.

Some parts have are very poor level of analysis referring poor quality of references. For example, referring to an argument of Convey (2012) in page 19, the report described intensification from three aspects (genetic, ecological and market). The reference has found only three factors but missed technological intensification (beyond genetic improvement or change) which contributed much more than any other factors in sustainability of farm. However, the roles of technology innovation and adoption on livestock based agricultural development are well explained in other sections.

Some policy recommendations are ackwards and meaningless. The problems and solutions are poorly explained.

Conclusion

In fact there is a need of a robust study to increase understanding about emerging issues and solutions of sustainable agriculture development including livestock farming at broader landscapes level, and draw the attention of socioeconomically powerful agencies. The study that benefit all societies could be carried out by the team of fair minded people with constructive thinking and rich knowledge of diverse kinds of farming systems and socioecological issues. However the draft document of HLPE on FSN has many serious problems in constructive analysis. If the policy recommendations are followed it may bring substantial benefits to institutionally strong and economically competitive countries particularly developed ones but it may further hamper livestock business of smallholders and other vulnerable farmers in long terms. The policy approaches play slow poison role on sustaining ruminant livestock business in many developing countries and poor societies. The imports of red meat and milk increase significantly in developing countries. The global agribiodiversity will be decreased. People who asses problems on critical theoretical framework (such as institutional theory of gender analysis) can argue that the problems on the report are associated with composition of members in the HLPE team and working mission and intension of FAO including funding agencies in the background.

Thanks.

Bhubaneswor Dhakal
Dear HLPE members,

Thanks for the opportunity of taking part to this discussion. Adrian Mueller on behalf of IFOAM Organics International, FIBL and TIPI compiled the following comments.

Answers to the specific questions posed for the consultation process:

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

ANSWER: Well, it has a strong focus on livestock, indeed, but this is largely ok; however, the role of over-fertilization for N2O emissions should be addressed in such a report as well, as there lies a big potential for improvements. In addition, it may be critizised that the focus is on the production side only and much less so on demand side measures.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

ANSWER: the structure is ok, but it should become much more concrete when it comes to recommendations, cf. detailed comments; missing aspects: also see the detailed comments, in particular, as just mentioned: demand side aspects and fertilization.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

ANSWER: well, this approach could be useful, but it is not used that much in the report, in particular towards the end and for structuring recommendations, etc. – thus, if such a structure is proposed, it could be utilized more prominently.

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

ANSWER: scenarios that emphasize dietary changes should be included and discussed more prominently (e.g. Stehfest et al. 2009); also other strategies such as reduced concentrate feed and grassland-based ruminant production has its potential as a complement to increased efficiency – this could also be described. (e.g. Schader et al. 2014).

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?
ANSWER: as already pointed out, the consumer behavior side should be covered more in depth and on a similar standing as the production side. Furthermore, some key aspects of crop production should be addressed: N inputs and also CC impacts on yields (there is one reference Havlik et al. 2015 that evidently presents some scenarios on this, but we did not find this reference in the list); several publications suggest that these impacts can be considerably negative (e.g. Müller et al. 2010, Challinor et al. 2014, Porter et al. 2014, Müller and Robertson 2014).

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

ANSWER: No, it is just a general suggestion on how to solve any problem: on p 67, it reads as follows: “It is imperative, in first identifying the priority challenges, to articulate them as clear, measurable objectives, then undertake analysis based on sound data and evidence in order to define the potential response options as a prelude to design and implement chosen policies and actions and, finally, to monitor and evaluate the results, which, in turn, could generate another round in the response cycle.” But this is basically common sense to solve any problem. The contribution of such a report would be in providing much more detailed proposal for the specific aspects listed before this section 4.5., namely the challenges and responses – as information is needed on when to choose which response and what may be its advantages and drawbacks, etc. – maybe assessing this with a SWOT analysis, for example (cf. detailed comments for some further suggestions on how to make this more concrete).

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

ANSWER: Well, yes, the literature contains thousands of case studies that could serve to illustrate specific aspects – I would suggest to identify some few most informative case studies for basically each response listed, drawing conclusions from each of those case studies in order to allow policy makers to adapt it to their own cases of interest. – It would be good to complement this report with a web-based data-base of case studies, to identify optimal strategies and responses. Given the necessity to in detail account for the specific local context in each situation, it would be of key importance to systematically collect the wealth of information available from a host of case studies in both the scientific literature, but also in government and NGO reports.

Setting up a well-searchable and standardised database containing all this information would help to identify viable options in specific cases. Successful cases of responses and policy design, but also failures, would serve as a rich basis for policy and management design in new cases of similar characteristics. Compiling such a data base, with help of the public, would be an important task for the FAO, for example, as such authoritative hosting would support achieving high quality and coverage, as well as consistent data representation. However, the public should repeatedly be asked to fill in own case studies which subsequently would be harmonized by the host. Because of the context-specificity, such a database could be a valuable tool for designing and implementing optimal policies.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

ANSWER: -
9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

ANSWER: well, this is a whole research program in itself – include it in a well-organised attempt to fill such a data base with help of the public, as described above.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

ANSWER: again – compiling and synthesizing this would be a whole research program in itself – there is quite some literature of potential relevance for this report, and it would definitely be good to have this included in the report in detail. In general, the report is strong in synthesis of the problem statement and forecasts – but more work is needed to have a similarly encompassing assessment of potential responses in such a way that it really serves to guide decision makers.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

ANSWER: again a big task; cf. remarks above; such a data base would also help to identify data gaps.

12. Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

ANSWER: cf. remarks above and detailed comments below; most important: take up demand side measures; address key aspects of crop production for food (e.g. fertilization); be more concrete regarding policy suggestions.

General remarks:

The report starts with a good and balanced overview at the beginning, both regarding current and future challenges, results from projections and the importance of a whole food systems approach.

However, later on, it does not live up to this; when it comes to recommendations and concrete actions, the demand side, consumer behavior and dietary change plays a much less prominent role than it could based on existing forecasts. The report thus overly focuses on the production side and does not harvest the potential of a true food system approach, also focusing on demand measures (besides some emphasis on reducing food wastage – but also there, focusing more on the other value chain steps than consumption). Dietary change is some topic with regard to health issues, but is never addressed which potential this may have. However, dietary change towards less animal products should be addressed in general, as one potential strategy to deal with the identified challenges – when considering health issues, mainly red meat reductions are important, however, from an environmental perspective and going beyond GHG, reducing monogastric products can be key as well. The potential of such dietary changes not motivated by health issues alone should be made explicit in this report as well.

Another drawback is that the report remains rather general in recommendations; this may change in a revised version and when more case studies are added, but emphasis should be put on truly
provide inputs to decision makers etc., that help them developing strategies for more sustainable food systems (cf. the detailed comments below for somewhat more input on that).

Detailed remarks:

Page 12, line 29: replace the forecasts with actual development – it is 2015, data up to 2014 will be available.

Page 13, line 45: no biophysical limits?? – check original publication.

Page 18, line 23ff: it is claimed that the 4 livestock production systems combined with 3 crop production systems serve to structure the report; this structure is however of decreasing importance towards the end and it could be made more prominent when discussing the challenges and responses and recommendations.

Page 26, line 3 ff: increasing demand for livestock is seen as positively influencing Food Security and Nutrition (FSN) – mentioning that this will need more animals and also more feed, but not pointing to any potential challenges related to that at this place in the report. Up to there, the report is nicely cautious and balanced and open to may pathways for increasing sustainability (incl. reduced livestock – cf. the assessment of Erb et al. 2009 just before).

Page 25, line 50ff: In a nutshell, the LR highlights accelerated 50 growth in demand for livestock products in parts of the developing world, tied to human population 51 growth, rising incomes, continuing urbanization and changing food preferences. The notion of the LR with its promise of diet diversity, better nutrition and health, and also economic opportunities for small-scale producers – is one of the most powerful ideas to emerge in the areas of food, nutrition and agricultural development over the last decade (Sumberg and Thompson, 2012). This is strange: not clear what LR is and then claiming that this is most powerful?? – the report is in general very balanced and encompassing – but then there are short parts, few sentences only, that give undue weight to particular aspects/views that invalidate the rest.

The then following list to explain LR from Delgado et al. 1999 reads as a harshest intensification strategy, - just like the red herring we made of Gerber et al. etc. in our concept paper, first version...

Page 34/35: a box, where “intensification” is clearly defined, what it entails and what not – differentiated according to different systems, if needed, should be added – currently, this term remains too vague; - statements such as p35, line 33/34: “As production systems intensify and become more efficient, less feed is needed to produce a given 33 unit of livestock product, with positive effects on the environment.” are problematic – they suggest that intensification and efficiency go along, which can be but need not be the case; furthermore, efficiency can take various forms: yield per gross energy input, or per DM input or per ha land use, and it could also include environmental efficiency, when assessing total GHG emissions per ton produce (including feed production), etc.

The implicit understanding of intensification here, strongly linked to efficiency, also detaches the discussion from the systemic view adopted in the previous sections of this report: looking at the per kg or per animal inputs, yield and emissions, i.e. determinants of efficiency, does not allow to account for the systemic aspects, such as a more broader role of livestock in agricultural production systems; - this systemic view should not only be purported in the more general discussion and overview of the previous sections, but also in this more detailed and concrete assessment on how the livestock sector is structured in various contexts and how it may develop further.

Page 37/38: to better understand the reported forecasts on prices and quantities, it would be good to provide more information on the policy context that are assumed for this assessment: e.g. climate policy and how this affects agricultural emissions, etc. – knowing this in some detail would...
allow to assess, how this development may look like in case other climate policy would be in place. The reported development likely reflects some kind of “business-as-usual” scenario – thus, please describe this in some detail, including the assumptions on policies.

Page 38, lines bottom of the box: are these numbers consistent? If the 110 daily wage rate in cereal production is an average over the year, then the annual income of such a worker is about 40’000 yuans (365*110), much higher than the average annual urban income and even more than the average annual rural income...??

Page 42, line 4: yes, but may add some reference to attempts that go in this direction, e.g. FAO 2013, 2014

Page 40 ff, section 2.6. – This section does not go far enough towards a true “Food systems” approach well beyond “value chains” – it takes up food wastage, trade/markets, ICTs (very shortly); a true food systems approach would rather focus on the interplay of supply/demand and consumer preferences, on the leverage of changes in the latter (e.g. if the projected consumption of animal products would be lower, etc.) – and it should address this in an integrated way – some parts further up in this report already go in this direction, e.g. when discussing projections and emphasizing the relevant discussion in Erb et a. 2009 that combines various approaches from changes in production to changes in consumption (may also refer to Stehfest et al. 2009);

Page 43, line 3ff ICT’s – this could be expanded considerably, - and may not address communication and information only, but also 3D-printing (e.g. Pearce 2015), etc. – may also refer to all the new remote-sensing data that becomes available and will allow improved monitoring of certain activities, states and developments, and will provide improved data on land use and land cover, etc.

Page 43, line 46-50: the content of this paragraph should be expanded in the previous sub-section 2.6 on food systems – then “food systems” would play a more prominent role in section 2.6 (cf. the previous comment).

Page 45, lines 24/25: this is very vague – be attentive to not implicitly assume some overly romantic picture of how agricultural production should be – “fostering liveable rural communities”:, for example, is a different goal than increasing sustainability of the food system – this increased sustainability should be achieved in a way that is acceptable for the current rural communities – but given the drastic change of those communities over the past 50 years, in particular in developed countries, we have to be cautious to not cement the current rural communities in a certain state, thus rather hindering their development. The question is, for each country: “which agricultural production system do we want to have in 30 years?” or so – and this can well include a change towards bigger farms, less rural population – in case these people find decent jobs in the urban centers or urbanization of rural areas takes place in a sustainable manner; - just make such issues explicit when addressing them;

similarly, “and producing food in ways compatible with values.” is very vague – what does this mean? Which and whose values? Is the core of these values a market liberalism or a strong focus on environmental protection? This has totally different consequences and needs to be made explicit and specified. – OK, it is somewhat expanded further down, but could be made more detailed – basically discusses the potential of labels in a context of free choice – but as said, other approaches to live these values may be chosen in a societal process.

Page 45, line 26-28: emphasize “internalization of external costs” when talking about efficiency – this is one thing that has to be made explicit as it is behind many of the adverse developments in agriculture: a lot of the external costs of production and consumption are not internalized.

Page 45, line 29-31: may add: pesticide use and ecotoxicity; water USE and scarcity (not only pollution)

Page 45 ff, section 3 in general: take up these additional points just mentioned above in detail.

Page 46, line 48 – p47, line 2: and what is the conclusion of this observation? Please make this more explicit (cf. the comment above for P45, lines 24/25, regarding “fostering liveable rural
communities”); I would suggest that this report should be more concrete and more detailed regarding this challenge of workforce, productivity, and GDP-share.

Page 47, line 32-42: “livable rural communities”: again, be more detailed on what exactly is the problem and the aim – what does mean “livable” and who decides on this? – and is agricultural policy indeed the right approach to achieve this goal? – A key will be the availability of jobs and education – but just keeping much workforce in agriculture may not be a good goal per se – in the long run; given the ITC developments, other job opportunities than agriculture may emerge in rural areas over the next decades; thus, be attentive to not cement the rural communities via agricultural production – and strongly differentiate this discussion in relation to countries, regions affected.

Page 48, line 16-22: please add references for the impact studies; this GMO topic is very sensitive and it should not be dealt with in such a short paragraph only. I would suggest to expand this towards a balanced coverage and discussion of positive and negative impact studies; - in its current form, it implicitly strongly suggests that this approach is an important part of solutions, but this should be discussed in more detail.

Page 48/49, section 3.2.1 this sections covers many important topics, but it does not mention “internalization of external costs” at all – please add a paragraph on this as external costs play a key role in agriculture and its environmental impacts; related to this are economic incentive schemes, such as abandoning distorting subsidies or taxation of polluting inputs. Clearly, this rather tends to increase prices than reducing them, but this discussion also needs to be taken up: should food become cheaper or more expensive? – Consumers and producers will be affected differently and there is a big danger of very distorting intervention; - If the goal is access to food, then the means to have cheap agricultural production may by far not be the most efficient means to achieve this, as it also makes food cheap for those that could afford more expensive food, and as it generally comes with external costs that are borne by the society afterwards, in total decreasing welfare.

Page 49, line 9-12: this is the “rebound effect” of efficiency measures – may add some paragraph to the related literature. It is the core of the argument that only increasing efficiency production without addressing changes in demand may not lead to much improvement.

Page 49, line 13-18: this is interesting and visionary – and it is inlin with some comments made above: which agricultural production system do we want to have in 30 years? I would suggest to take up this question with all its welfare related consequences on rural jobs and livability or rural communities much more explicitly.

Page 49, line 19-26: this paragraph sort of blocks any argument that aims at discussing such fundamental changes in diets – but this is crucial: a true food system approach, the rebound effect mentioned above, etc. make it unavoidable that production changes and consumption changes are discussed together and that the projected increase in animal products should also be strongly questioned – reducing the amount of animal products is one approach with big leverage to reduce environmental impacts from agriculture and need not only be argued via health arguments (cf. also the scenario discussions further up in the report, e.g. Erb et al. 2009, Stehfest et al. 2009).

Page 49 lines 25/26: this comparison of orange juice and milk is not entirely correct and seems to serve to just illustrate that animal products are climate friendly. First, the carbon footprint (g CO2 per 100g product) of milk is HIGHER than of orange juice, also according to the study cited; however, it is correct that the carbon emissions per aggregate nutrient density to climate impact index (NDCI), which they also report in this study, is higher for orange juice: thus, focusing on a range of nutrients instead of the quantity, the emissions of milk are lower; however – it is then important whether the comparison of beverages on the basis of these nutrients make sense – as can be seen for water: water has no nutrients and thus has a NDCI=0 – but still, tap water is a very sustainable beverage with very low carbon footprint (CO2 per 100g; a tenth of that of milk). – Thus, when comparing NDCI, beverages rather seem to be compared as nutrient supply, i.e. food, rather than as liquidity supply (i.e. beverage). – Please be more explicit and transparent with such numbers. – Would also be interesting how much of the CO2 emissions of orange juice stem from transport and how apple juice would perform in this analysis.
Page 49, line 28 ff: that’s good, the externalities are taken up and their importance is acknowledged – but it would still be good to mention them already earlier, as indicate above.

Page 50, line 43/44 – implicitly, and with the context of the previous sections, this is rather termed as a negative development – but why not? Again, one key aspect is a discussion on which agricultural system will be present in 2030 years – which average farm sizes, etc.

Page 52, line 21: please mention – or make explicit – the emissions related to land use change for feed production and may also mention the soil-C sequestration in grasslands that can make grassland-based production systems carbon neutral (at least till saturation is reached; Soussana et al. 2010) resp. that may contribute to conserving grasslands which, if converted to cropland (where this is possible), would lose huge amounts of CO2 (Smith 2014).

Page 54, line 9: add “grassland based feed” to “increased use of crop residues and by-products”.

Page 55, line 21: reference Havlik et al 2015 is missing in the reference list.

PS6, section 3.4.2: a discussion on the CAUSES of the animal diseases would be interesting – please add such, in particular addressing which animal production systems may lead to more or less diseases (e.g. correlation with high productivity levels or not, etc.).

Page 62, line 29-31 – please emphasize the problem of the rebound effect here as well: WITHOUT changing output, such emission reductions are viable, but given that the output increases considerably by 60-70% or so (e.g. based on Alexandratos and Bruinsma 2012), total emissions from the livestock sector would still increase by 20% or more.

Page 62, line 40: when mentioning C-sequestration in grasslands, may add that this shows a saturation dynamics and thus only delays the need for true emission reductions but cannot offset part of the emissions indefinitely (Smith 2014).

Page 62 line 50: mention “internalization of externalities” explicitly as well, e.g. right after “improve the efficiency of markets” (as it is part of increasing this efficiency – as long as externalities are not internalized, the markets are not efficient, as prices are not reflecting true costs).

Page 62, section 4.3. “pathways...”: please be much more concrete when discussing those; as it is now, it mentions important general aspects, characteristics and types of solutions, but way too general to serve as more concrete policy advice. It is indicated, that this section will be further elaborated – thus please make it more concrete when doing so. The “solutions” part of such a report should not provide general statements that are agreed on by (almost) any reader, while no reader will be prompted to action, but it should rather suggest concrete paths of action, that may be criticized, but in such criticism, alternatives may be developed as well. The only thing that counts is then that concrete action is identified and then implemented – and at least some suggestions for such concrete actions should be provided in such a report – on page 10, it is stated that “the report will offer policy-makers and other stakeholders realistic options to achieve that goal [which is: improving FSN through sustainable agricultural development]” – thus, such realistic options should be presented, and to be realistic, they need a certain level of concreteness and detail.

Or maybe state at the beginning of section 4.3. that these “pathways” line out the challenges ahead and key issues to be decided on, but that concrete options on how to act will be presented in section 4.4.

Page 63 line 55: the subsequent list does not mention consumption side measures at all. But given that the report claims to adopt a food systems approach and that consumption has been a topic above in various places, it should show up here as well. Important aspect of pathways towards the goals of increased FSN through sustainable agricultural development are key consumption measures such as reduced food wastage, reduced consumption of animal products and related dietary change, as well as a discussion on biofuel futures. – Please give those aspects the role they deserve also in this section.
Page 65, line 27 ff: this list is also quite general and should list more concrete measures – e.g. “apply social safety nets” – this is important, but how exactly? Similar: “prepare for and adapt to climate change”; other suggestions remain even more unclear, e.g. “Encourage formation of voluntary associations in the agri-food chain” – why should this lead to improvements of the kind and size needed? It clearly can, but some motivation and discussion should be provided.

Add to the list: develop and implement insurance solutions to deal with weather and market risks

“Reduce food losses and wastes” can also be seen as a social response, not only an economic; this illustrates, that for each of those bullet points, there should be at least a paragraph with some details and discussion, aiming at making it more concrete. Similarly: “Apply the polluter pays principle” can also be listed as economic response.

Other important aspects that are missing: reduce N inputs and increase N use efficiency; close nutrient cycles; address fossil P use and identify alternative sources (recycling). Reduce pesticide loads, etc.

Demand side measures addressing dietary change towards less animal products are also missing.

When remaining on this level of generality, though, this will not really change much: at least, some assessment of the context in which each suggestion may be implemented and when not should be added, maybe it would be good to have a SWOT-analysis of each of those suggestions. As the scope of the report is global, such suggestions can never be tailored to single countries or regions – but they could be presented with a suggestion on how to assess the viability in a given situation; and this could be addressed via a broad SWOT analysis for each point, collecting and analyzing which barriers it may face, which possibilities for success there are, etc., depending on certain context characteristics. it will for example be difficult to reduce N inputs in a context where governmental default suggestions for N fertilization rates are way too high, etc. Such a SWOT analysis could be taken up as part of the suggestions on how to approach this provided in section 4.5 and it would also allow to identify trade-offs and synergies between different responses (cf. 4.6)

The other thing that can help to become more concrete is to present a wealth of detailed case studies on these different responses (this may come further down in the report?).

Page 68 ff: the case studies are helpful and their structure as well; however, these are entirely focusing on production and a food system approach is lost – no case study on food wastage reduction beyond the production stage or on dietary changes; such should be added. In addition, case studies may need to provide more details to truly capture all aspects; - in the Amazon-case, for example, the issue of indirect Land Use Change is not mentioned at all, although this may be an important driver behind deforestation – thus, the original cause may not be beef production but sugarcane (e.g. Andrade de Sá et al. 2013).

It would be nice to have more case studies and it may be an idea to in addition evaluate those with a SWOT analysis of the various responses involved – they need to provide as much information as possible for a policy-maker to identify, whether a specific response may be an option for his or her country or region, and what the specific strengths, weaknesses, opportunities and threats – i.e. “challenges” may be.

Page 81., line 30-33: not only waste, loss and health reasons may work towards dietary changes, big leverage for environmental improvements exists also for diets with reduced animal products in general (also monogastrics), argued by the amount of animal products that may be supplied without food- competing feedstuffs (Schader et al. 2014).

References:


FAO 2013, Toolkit – reducing the food wastage footprint, , Food and Agriculture Organization of the United Nations FAO.FAO 2014, Mitigation of Food Wastage: Social costs and benefits, Food and Agriculture Organization of the United Nations FAO.


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Smith, P. 2014 Do grasslands act as a perpetual sink for carbon? Global Change Biol. 20, 2708-2711


87. Lal Manavado, Norway

Comments on the Draft V0

I have read this first draft with great interest as sustainable agriculture is a necessary condition for the adequate nutrition of the world’s human population, and its food security. Therefore, other things being equal, it is vital that we should adopt a holistic approach to identify the appropriate means of ensuring the sustainability of agriculture in its widest sense.

However, this draft seems to represent the traditional anthropocentric thought, i.e. all the world’s resources should be at the disposal of mankind irrespective of the environmental catastrophe it would inevitably entail. We already have sufficient evidence of this in observable climate changes and their consequences.

I plead here for a fresh look at what is necessary to make agriculture sustainable, not merely how to feed growing human population as though we can reconcile population increase and the sustainability of agriculture ad libitum.

Existence of life on earth as we know it, depends on the equilibrium between the living and the resources they require to sustain life. The portion of these resources accessible to the living is finite.

Those resources fall into two logically distinct categories, viz., mineral and biological. The former consists mainly of Oxygen, water, Carbon dioxide (for photosynthesis) and a variety of other inorganic compounds. All of these are in constant re-use as the used material is made available to the living via a set of well-known cycles, eg. Carbond and water cycles. How much agriculture depends on these is already well established.
Existence of all animal life depends on its access to certain mineral and biological resources. The latter may be plants required by the herbivores or the animal diet the carnivores need, while the omnivores require both types.

Meanwhile, the inorganic compounds the living have used are returned for re-use by the action of scavengers and the saprophytic organisms that live upon the dead and/or excreta of the living.

Hence, the possibility of the continued existence of the living depends on the equilibrium between them and the mineral resources they require, and the equilibrium among the living species themselves to accommodate animal and plant predation, scavenging and saprophytism.

This equilibrium among the living depends on their biodiversity and the population of individual species. The danger loss of biodiversity entails is now widely accepted. In nature reserves, authorities have to resort to culling some species in order to preserve the habitat for all the species living there.

Moreover, a quantitative reduction of plantlife from a land area has a drastic effect on the water retention by the soil, loss of fertile top soil through increased erosion, and changes in the heat exchange between the land and the atmosphere. This last will result in a dramatic rise in the local temperature as well as a significant reduction in rain fall. Further, water erosion results in siltation of streams, which in some areas already leads to floods even after a moderate rain fall.

As human population rises together with our expectations, the need for resources exclusively for human use also increases. Every current ‘development’ scheme entails anyone or more of the following:

1. Changes in land topology owing to the building of roads, buildings, deforestation for timber and agriculture, etc.

2. Increasing emission of Carbon dioxide from the use of fossil fuels and animal husbandry.

3. Increased ocean pollution with Nitrogen and Phosphorous from agro-industry that results in algal blooms that kill all marine life in large areas.

We already see the awful environmental degradation and its effects on global climate and the availability of water. It is difficult to see how one can realistically increase the global food production and achieve an equitable distribution of food to the current world population without more environmental degradation, whose consequences would be far more drastic and unpredictable than what we experience today.

I think this state of affairs arises from the belief that human kind is somehow exempt from laws of nature, and we have a ‘right’ to exist at the expense of every other living thing.

The very possibility of sustainable agriculture depends on its full integration into the totality of human affairs, because current notions of development entails the use of an enormous quantity of diverse natural resources, whose extraction, conversion into good and/or services and use entail serious environmental degradation and its known consequences.

Indeed, loss of food due to several causes and its waste at domestic level could be minimised. But the question is whether this would go a long way to ameliorate the inequities in global nutrition.

I think the time has come to underline that growth of human population is also subject to the same constraints to which all other populations of the living are subject.

Unless active measures are undertaken to curb the global population increase immediately, preferably to stop it, I think equity in nutrition can only be achieved at a very high price, viz., high incidence of serious natural catastrophes and a general fall in the quality of human lives.

Even though it is stark realism that compels me to be pessimistic, it makes one sad all the same. And yet, I hope my comments may make people think a little more about the crucial subject of sustainable agriculture and the vital need to have it fully integrated into other spheres of human activity.
Humane Society International (HSI) is one of the world’s largest animal protection organizations working to protect all animals. HSI’s farm animal welfare initiatives engage stakeholders at every stage in the supply chain for eggs, milk, and meat—including farmers, governments, food retailers, financial institutions, and consumers—to improve the welfare of animals raised for food. We greatly appreciate the opportunity to provide input to the Zero Draft of the HLPE Report on Sustainable agricultural development for food security and nutrition, including the role of livestock.

Overall, we appreciate that the report tries to be comprehensive and include recommendations aimed to meet multiple sustainability and nutrition goals. Indeed, this is the type of approach necessary in the 21st century. At the same time, we see room for improvement, particularly as it relates to animal welfare, sustainable diets, and implementation.

Our comments are organized below in response to the HLPE’s twelve questions regarding the Zero Draft. We hope they are useful and look forward to discussing any questions the Panel may have.

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

While the overall approach is useful, they could be clarified. Section 2 (trends) often seems to spill over to Section 3 (challenges). Further, the responses (Section 4) and recommendations (Section 5) should be more aligned. Section 5’s recommendations actually seems to have improved detail that could be reflected in Section 4.

There should be a fuller accounting of negative impacts of animal agriculture on environment, animals, and health. Many of the statements in this regard are not as specific as those presented for the positive case. For example, the impacts of farm animal agriculture on the climate, as discussed above, should be supplemented. Suggested remedies for this are listed with the specific text comments in response to question 12, below.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Four broad categories can be useful in terms of responses. However, the nomenclature between intensive and industrial animal agriculture is often misplaced. The “intensive livestock systems” category (p. 33 line 3) actually seems to identify the “industrial livestock systems” discussed elsewhere in the report. This category should be changed to the latter to reflect that. Further, throughout the report, the use of “intensive” and “industrial” should be reviewed to ensure that “intensive” is not used inappropriately. One term does not necessarily imply the other.
4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

The trends in terms of diet and climate change impacts are missing at least two key references. Section 3.3.1 should be expanded slightly to reference some of the numerous studies showing not only the overall large impact of animal agriculture on climate change, but the different impacts of different dietary choices. Regarding diets, vegetable-based diets have been shown as having significantly lower in emissions in different national contexts. Some of these are discussed in the IPCC Fifth Assessment Report, Working Group III, Chapter 11. Regarding the overall impacts, one study looked at animal agriculture’s impacts on sustainability boundaries in the year 2050 and found that, even assuming efficient sectoral growth, farm animals alone are projected to account for over two-thirds of the amount of GHGs considered safe by 2050. (Pelletier N and Tyedmers P. 2010. Forecasting potential global environmental cost of livestock production 2000-2050. Proceedings of the National Academy of Sciences of the United States of America 107(43):18371-18374.)

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

A number of governments, including China, encourage reduced consumption of animal fat and/or increased consumption of plant based foods in their national dietary guidelines. Country-specific examples include:


Further, there are a number of successful civil society initiatives around the globe which help food companies, local governments, hospitals, educational institutes, and other influential institutions to implement sustainable consumption policies including (but not limited to):

Green Monday Hong Kong (greenmonday.org)

Meatless Monday, US (meatlessmonday.com)

Lunes Sin Carne, Mexico ([http://hsi.org/lunessincarne](http://hsi.org/lunessincarne))

Segunda Sem Carne, Brazil ([http://hsi.org/segundasemcarne](http://hsi.org/segundasemcarne))]
8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

Downstream: Hundreds of large food companies throughout the world, from Nestle to Compass Group, have adopted policies that call for higher animal welfare standards within their supply chain, and encourage more plant-based eating.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Demand-side approaches deserve more attention, including current initiatives and knowledge and research gaps, with a particular focus towards implementation.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Possible interventions, responses, and impacts of shifts towards more sustainable diets would be helpful.

12. Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Overall, while there are not any major omissions, there are a number of opportunities to improve the report in terms of animal welfare and healthy and sustainable diets.

In addition to the comments on the balance of the report above, we note that there seems to be a presumption that negative tradeoffs are necessary in furthering sustainable agricultural development (e.g. page 43 lines 38-39; page 64 line 39). It is not clear to us that the evidence supports this. Further, the HLPE should make efforts to find pathways that provide co-benefits, of which there are many.

In terms of projections, often they are couched in language that indicates a level of certainty that goes beyond what the projection is and that contradicts a frank discussion in Section 5, for example, that explains that projections are just that, projections (page 81 lines 30-32). Thus, care should be taken to ensure references to projections are not used with certain language, e.g. page 23 line 39 “will rise....”

Finally, and importantly, Sections 4 and 5 of the report are seriously lacking in terms of timelines. Environmental and other sustainability concerns outlined in the beginning of the report show that changes are needed immediately, yet the responses, decision-making framework, and recommendations lack any timeline, through the CFS processes or elsewhere.

Specific comments follow:

Page 16 line 16: “Care” should be changed to “welfare.”

Section 1.4 ignores healthy vegetarian diets, but this should be included.
Page 26 line 17: We are unclear of how you calculated 33 billion livestock. Using FAO Stat, we have calculated that, in 2013, 77 billion land animals were raised for food. Thus, we think your estimate is a significant underrepresentation.

Page 34 lines 16-19: The shift to industrialized animal agriculture should be more clearly shown in the report, possibly here. A good reference for this is the Pew 2008 report.

Page 38 lines 18-20: This statement is unsubstantiated and should be changed if it cannot be supported. It is unclear to us that this is the case.

Section 2.5 needs subsection on animal welfare rather than just merging the topic into conclusion comments (Section 2.7). This would also better reflect the attention given later in the report.

Page 41 line 38: The section on food waste should recognize the wasted resources consumed by the inherent inefficiencies of animal agriculture. The conversion of energy and protein in animal feed into edible meat calories and protein is highly inefficient. Most of the energy farm animals consume from grains and other sources of food is used for metabolic processes or for forming bones, cartilage, and other non-edible parts (offal), as well as feces. This suggests that, in many cases, scarce agricultural land and water are better allocated to the production of high-nutrient plant-based foods. While estimates of feed conversion vary across production systems and regions, studies conducted in the U.S. offer some insight into the efficiency of milk, egg, and meat production. Smil calculated feed conversion efficiencies of various types of farm animal production based on USDA data from 1999 (Smil V. 2002. Nitrogen and food production: proteins for human diets. Ambio 31(2): 126-131. p. 130). According to his calculations, it takes 4.2 kg of feed to produce 1 kg of chicken meat, 10.7 kg of feed per kg of pig meat, and 31.7 kg of feed per kilogram of beef. Eggs are similarly inefficient by this measure, requiring 4.2 kg of feed to produce an edible kg of eggs.

Page 43 lines 29-31: The history and extent of the shift to industrialized animal agriculture should be more clearly shown in the report. A good reference for this development is the Pew 2008 report.

Page 45 lines 22-34: Animal welfare should be listed as a priority issue.

Page 48 line 9: “Welfare friendly” should be changed to clarify “animal welfare friendly.”

Page 49 lines 22-26: It is misleading, and against overwhelming and consistent evidence of the lower GHG emissions intensity of vegetarian foods, to pinpoint that orange juice has a higher carbon footprint than milk. This statement needs to be put into context to more accurately reflect dietary choices and impacts on climate change.

Page 54 lines 13-15: The comparison of water footprints in terms of protein efficiencies is written with bias that misrepresents the results of Mekonnen and Hoekstra (2012). They state “When we look at the water requirements for protein, we find that the water footprint per gram of protein for milk, eggs and chicken meat is about 1.5 times larger than for pulses. For beef, the water footprint per gram of protein is 6 times larger than for pulses.” Table 3 of that study also shows pulses, oil crops, vegetables, and cereals as having lower water footprints per unit of protein than eggs, chicken, or other animal products. This contradicts the tone and phrasing of the Zero Draft, which should be changed to more truly reflect the results of the study.

The current, headings of subsections 3.3.1 and 3.3.4, which on their face could be confused with one another, should be clarified to indicate the actual substance of the sections. Section 3.3.1 should be more clearly identified as concerning the impacts of farm animal production on climate change, while section 3.3.4 is in regard to the impacts of climate change on agriculture, in particular farm animals.

Section 3.4.4: As a whole, this section should include many more references to show where the statements originate.
Page 58 lines 5-8: The definition of animal welfare should not solely rest on the OIE, especially given that the OIE is still developing specific standards. Another helpful reference here would be to the Five Freedoms. The Five Freedoms is a framework for approaching animal welfare. It is a logical way of thinking about the animal welfare problems that can occur in different housing and management systems, and lays out the important needs of animals that should be addressed. The concept originates from a 1965 British government committee, which was first tasked with a formal examination of the welfare of animals in proliferating industrial production systems (http://webarchive.nationalarchives.gov.uk/20121007104210/http://www.fawc...).

Page 58 lines 40-46: The origin of this list of challenges should be shown and clarified. Currently, it is unclear whether this list is complete or correctly reflects the body of evidence. At least, a fourth category for public and private finance, for example in the form of development banks, should be added. The European Bank for Reconstruction and Development, for example, updated its Environmental and Social Policy to ensure that any agribusiness projects it finances meet or exceed European Union animal welfare laws (as reflected in Box 17, p. 79).

Page 58 line 51: Alone, the noted difficulty in producing global consensus ignores the wide-reaching animal welfare improvements in numerous national contexts and production systems, including those stimulated by consumers and major multinational companies (as reflected in Box 17, pp. 79-80). This section should more clearly contextualize the current progress and continuing, major improvements in global treatment of farm animals.

Page 62 lines 20-28: It should be noted that the choice of mitigation practice or technology can have implications outside of climate change. One example is in terms of animal welfare, and pathways should be chosen that amplify co-benefits and avoid negative tradeoffs (Shields S. and Orme-Evans G. 2015. The Impacts of Climate Change Mitigation Strategies on Animal Welfare. Animals 5(2):361-94.)

Page 62 lines 29-31: It should be clarified that the referenced FAO report suggests that wholesale system changes, for example to industrial production, are not necessary for the vast majority of benefits (Gerber et al., 2013, at pp. 45-46).

Page 62 lines 36-37: It should be noted that this approach, particularly towards more production of monogastric species, implies significant negative animal welfare impacts (Shields and Orme-Evans, 2015). And there are alternative pathways that imply little to no tradeoff.

Page 63 lines 26-27: Again, it should be noted that this approach, particularly towards more production of monogastric species, implies significant negative animal welfare impacts (Shields and Orme-Evans, 2015). Yet, alternative options offer co-benefits and avoid such tradeoffs.

Page 63 line 55 to page 64 line 20: The purpose of list should be clarified. At least, animal welfare and health should be added to the considerations.

Page 64 line 39: The evidence that tradeoffs must be made in most cases seems, at best, weak. Gerber et al. (2013) does not seem to imply this in terms of climate change. Nor, in the case of animal welfare, is this necessarily the case (Shields and Orme-Evans, 2015). Thus, language discussing whether tradeoffs may or may not be necessary should be softened.

Page 66 lines 15-30: Animal-welfare-related responses should be strengthened. To call for development of animal care standards leaves ample opportunity for standards that do not actually meet the physical and behavioral needs of the animals. Thus, it should be added that responses should be based on the Five Freedoms and not allow backsliding from global progress. One useful response for minimum standards, for example, is the banning of gestation crates in pig production and battery cages in laying hen facilities (referenced in Box 17, p. 80).
Healthy and sustainable diets should be added to the cross-cutting responses, which can positively impact many aspects in this report. And it is already, rightly, included in the cross-cutting recommendations (p. 83 line 36).

This change also implies negative tradeoffs for animal welfare (Shields and Orme-Evans, 2015).

For this, too, multiple goals must be met at the same time. The intensification of beef production in this context should not lead to negative animal welfare or environmental tradeoffs. For example, it should not lead to an increase in feedlots.

The animal welfare implications of these changes should be discussed.

This change also implies negative tradeoffs for animal welfare (Shields and Orme-Evans, 2015).

For this, too, multiple goals must be met at the same time. The intensification of beef production in this context should not lead to negative animal welfare or environmental tradeoffs. For example, it should not lead to an increase in feedlots.

The animal welfare implications of these changes should be discussed.

The IFC Good Practice Note was updated in 2014, so the 2006 version referenced here is no longer current. The subheading “Delivering animal welfare” should include Humane Society International, which has also been working throughout the globe with governments, businesses, investors, and industry to implement practical and meaningful farm animal welfare improvements. Further, a different subheading for the last two paragraphs of this box is necessary, since those do not fall under the IDF.

“Animal care” should be changed to “animal welfare.”

“Some people” seems inconsistent with the “billions seriously affected” regarding overnutrition in Table 1 at page 54.

“Care” should be changed to “welfare.”

In the heading of this section, “care” should be changed to “welfare.”

As we suggested for Section 4, the animal welfare recommendation should be strengthened. While it is good here to point to industrial systems, this recommendation still leaves ample opportunity for standards that do not actually meet the physical and behavioral needs of the animals. Thus, it should be added that these should be based on the Five Freedoms and not allow backsliding from global progress. One useful response for minimum standards is the banning of gestation crates in pig production and battery cages in laying hen facilities.

89. Dirk Verdonk, World Animal Protection, Netherlands

World Animal Protection welcomes the attention given by the Committee on World Food Security (CFS) to the importance of addressing the role of livestock in the development of sustainable agriculture. With this submission, we would like to:

- Focus on importance of Animal Health and Welfare to Sustainable Agriculture
- Make some general remarks as to the approach to achieving Sustainable Agriculture
- Raise some specific points

Animal Health and Welfare – Core to Sustainable Agriculture

The report highlights the importance of animal health and welfare as a component across all livestock farming types. This is welcomed, as is the report’s attention to the potential for good practice in animal handling, transport and slaughter to improve welfare, prevent disease and reduce carcass losses.

However, there’s still significant scope for improvement here. Animal welfare is not an ‘other’ consideration, but core to the social, economic, environmental and ethical dimensions of sustainability and should be reflected as such within the conceptual model noted on page 22.
In places, the report appears to imply that the issue of animal welfare is still controversial (p.58, line 47-51). Yet globally there is broad international consensus on animal welfare principles. The CFS Principles for Responsible Investments in Agriculture and Food Systems, as adopted in 2014, acknowledge that there is a positive correlation between supporting animal health and welfare on the one side and sustainably increasing productivity, food quality and food safety on the other. Moreover, all members of the World Organisation for Animal Health, currently 180 countries, have agreed to animal welfare principles and begun to develop global standards. Furthermore, respect and care for animals is a common thread throughout the world’s religions, including Islam, Christianity, Hinduism, Buddhism, Judaism and indigenous religions.

As yet the report does not give sufficient attention to the substantial benefits that good animal health and welfare provides for small scale producers, for example through feed quality, health management and husbandry skills. Existing naturalised systems of production often use local breeds well suited to their climate and thus are more robust in the face of environmental challenges. Provision for natural animal behaviour can reduce stress and boost productivity. Making use of the natural animal behaviours (like grazing and foraging) reduces the needs for inputs (feed, tractors, fuel).

In more intensive industrial agriculture systems, animal welfare is often compromised when farm design emphasises only productivity, and as such cannot be considered sustainable. It is possible to redesign these types of livestock production to account for animal welfare (such as indoor group housing rather than close confinement of animals in cages and crates) without negatively impacting productivity significantly. Efforts to improve productivity should always take into account animal welfare (for example breeding broiler meat chickens for better leg health to prevent culling due to lameness). Useful models such as McInerney (2004) conceptually describe the different pathways for improving livestock productivity while maintaining good animal welfare. It is important to note the evidence described in the report (Erb et al., 2009) that shows that farming systems which deliver good welfare can also provide sufficient food for the world’s future needs. Consequently, we propose that the section on animal welfare is extended to include this wider view.

It is noted throughout the report that both the terms animal welfare and animal care are used. It is not clear if these are used interchangeably and no definition of animal care is given. Please clarify if the definition of animal welfare on p58 applies to both.

**Recommendation:** The report should prioritise attention to animal welfare in all farming systems to increase their sustainability, recognising the positive correlation that exists between animal welfare and food quality, food safety and sustainably increasing productivity, and therefore, by extension, with achieving FSN.

**General remarks**

**Sustainability and Policy Coherence**

In ‘Transforming our World: the 2030 Agenda for Sustainable Development’ the global community committed to achieving sustainable development in its three dimensions — economic, social and environmental — in a balanced and integrated manner. A new approach is needed that recognizes cross-cutting elements that exist across the new Goals and targets and focuses on addressing these together. The current zero draft acknowledges the so-called ‘externalities’ of agriculture, particularly industrial livestock production, but does not yet sufficiently show how implementation of other Sustainable Development Goal areas will impact on agriculture.

Policy Coherence for Sustainable Development is now recognized globally as the means through which sustainable development can be achieved. This means that the externalities generated by agriculture
must be reflected in all policy-processes (as noted in section 4.5) but also that policies and actions in other sectors are likely to limit the policy space available in the agricultural sphere. At present, the zero draft does not include an analysis of how global action to stop biodiversity loss, realizing affordable healthcare for all, limit global temperature increase to below 2 degrees, and ensure food and water security for all, to name a few, are going to be achieved concomitantly.

**Recommendation:** Recognizing the reciprocal consequences of policies and actions in agricultural and other related sectors, the report should recommend that Policy Coherence for Sustainable Development be a guiding principle for pathways towards sustainable agricultural development

Reversing the Challenge

While the zero draft accepts that globalization of the ‘Western diet’ is not sustainable, it does not challenge the central premise that rising demand, in part caused by higher incomes leading to a ‘Westernization’ of diets, must be met by equally rising supply.

An alternative approach (as hinted at on page 9, line 26-29) would be to use the boundaries of integrated economic, social and environmental sustainability, including achieving Food Security and Nutrition, as a basis for developing pathways to sustainable production and subsequently use sustainable supply levels to determine what action needs to be taken to influence demand. Even though this alternative approach may need more political leadership, the zero draft would be much improved if such an alternative approach were presented.

**Recommendation:** To achieve a sustainable global food system, the sustainability of supply levels must be considered in determining sustainable agricultural policy at the national, regional and global levels.

The Limits of Generalization

The zero draft reads as a discursive report, and reveals some of the major issues surrounding the role of livestock. More in depth analysis of the drivers of current trends (beyond population growth, GDP, urbanisation and changing diets) and greater clarity of narrative and structure could provide a clearer route to draw conclusions and highlight policies and practice change which can be enacted at international, regional and national level to achieve sustainable food systems.

Specifically, the report presents ‘projections’ as something conceptually different from a ‘scenario’ or even a ‘normative scenario’ (p.24-25). Yet a projection is based on historical trends which are the result of decisions and interactions of societal/political actors in the past. As such a projection is not neutral, but represents also a normative scenario. An analysis of the presence or absence of policy decisions which have worked for and against achieving sustainable food systems would be valuable to aid innovative thinking and find new direction beyond ‘business as usual’. Whilst the report leans heavily on the FAO baseline projection regarding demand of animal sourced foods (ASF) in 2050, it is also acknowledged that to achieve sustainability ‘business as usual’ is not an option. Greater clarity as to the criteria used for determining the relative value of different ‘scenario’s for developing pathways to sustainable agriculture is needed.

The report also generalizes about benefits and harms of ‘the livestock sector’. Yet these are very differently distributed over the various forms of livestock keeping, which makes any generalized statement about ‘the livestock sector’ as a homogeneous entity misleading. In reality, forms of livestock keeping range from greatly contributing to FSN to being very detrimental to FSN. Clarity and focus on those systems which contribute to FSN is necessary for building good policies, generalized statements that mask these differences are better to be avoided.

Throughout the report, there is an abundance of references to scenarios that note that the ‘potential’ exists to overcome certain challenges. In some cases such potential relies on technology that is not yet available today but there is an expectation that the required technological advancement will appear in
time. Balancing the expectation of technological advancement with making different choices in terms of how we consume and produce is currently insufficiently highlighted in the report and would likely lead to more sustainable solutions.

**Recommendation:** Next iterations of the report should provide greater clarity as to the narrative and structure of the report and where possible include a judgement as to the relative value of projections used where necessary.

**Synergies Rather than Trade-offs**

Dealing with the different types of livestock systems, the report would benefit from increased emphasis on the potential of non-industrial and agro-ecological production, most relevant to small scale producers – without losing emphasis on the need for highly industrialised systems to (further) transform and become more sustainable. In this regard, the report’s underlining of the wider dimensions of economic, social, environment and ethics as core components of sustainability is welcomed. However, these core aspects of sustainability are often loosely described and too readily framed as subject to trade-offs.

The report has the potential to drive forward positive concrete impact on sustainable development of FSN by prioritising synergies rather than trade-offs. The priority for improving efficiency sustainably lies in enabling smallholder farmers as they have been evidenced as likely to provide the most effective route to achieving productivity through existing technologies (Gerber et al., 2013). Further intensifying production of already highly intensive systems such as yield-maximised dairy production offer relatively small increments in efficiency (outlined in de Jong, 2013), yet are likely to be less sustainable in a range of other aspects, for example through increased reliance on grain-based feed rather than in situ pasture, plus the potential for loss of livelihoods and biodiversity and higher animal health and welfare risks such as reduced fertility and increased susceptibility to disease. Such systems can be brought into better balance with inclusion of the social and environmental dimensions, including by substantially improving animal welfare.

One example of achieving synergies is the growth of silvo-pastoral systems in Latin America, which has demonstrated scientifically evidenced benefits for productivity, soil quality, greenhouse gas mitigation and animal welfare, while boosting rural economies and livelihoods (see [http://www.agribenchmark.org/fileadmin/Dateiablage/B-Beef-and-Sheep/Misc/Other-Articles-Papers/CO-milk-beef-production-150203.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-Beef-and-Sheep/Misc/Other-Articles-Papers/CO-milk-beef-production-150203.pdf)).

The report would benefit from a more in depth discussion of the use of human edible food to feed livestock in industrial systems. A major factor in the failure to achieve food and nutrition security to date has been the lack of coordination and balance between animal and plant food production on a local, national and international scale. Moreover, given the significant caloric and nutritional loss associated with the use of human-edible food as livestock feed, this practice and the amounts of food involved should really be included in the wider debate on food loss and waste.

**Recommendation:** Where possible, focus should be given to prioritizing systems with greater potential for synergies over systems that are more prone to trade-offs. Where trade-offs are unavoidable, trade-offs at the expense of animal welfare, and therefore sustainability, must be avoided.

**The Role of Animals – Enabling Resilient Rural Societies**

For many rural populations, animals are often people’s most valuable productive asset and disaster-related losses can have devastating impacts on rural livelihoods. In order for livestock production to be sustainable, it must be resilient. Preparedness for management of livestock welfare in regions faced with environmental challenges such as drought, climate change impacts or natural disasters can ensure resilience of farming systems and prevent damaging losses. This aspect of sustainable livestock production
is as yet unexplored by the report. Given the expected higher incidence of natural disasters due to climate change, this becomes increasingly pressing.

The loss of animals during a disaster can create a second crisis in the form of long-term hunger, malnutrition and unemployment thereby increasing debt, recovery time and aid dependency. Livestock act as an important risk buffer during times of food scarcity and variability. Despite their critical importance, animals are often neglected during disasters due to a lack of knowledge, recognition, resources and co-ordination. The UNISDR reports that while human mortality is decreasing during disasters, the value of lost assets is increasing exponentially”. According a recent study by the UN Food and Agriculture Organization (FAO), smallholder farmers and pastoralists absorb 22% of the economic costs of natural disasters yet receive less than 5% of post-disaster aid. Livestock mortality accounts for 36% of those costs, costing the sector $11 billion (USD) annually.

Helping smallholder farmers and pastoralists protect their livestock during disasters is a worthwhile investment for donor countries and should be one of the policy recommendation in this report given its importance to food, nutrition and economic security, sustainability and resilience. Studies show that investing in animal protection saves lives, livelihoods and foreign aid. This would also help countries fulfil their obligations to the Sendai Framework for Disaster Risk Reduction which recommends “strengthening the protection of livelihoods and productive assets, including livestock, working animals, tools and seeds.” (see “Economic case for livestock interventions” for references).

Animals are more than a means of production, and the report needs to address this. Outside industrial systems, animals in agricultural systems often fulfil a range of functions, providing draught power to plough fields, transport, fertilizer, a social safety net, social status, companionship and cultural identity. The zero draft notes the multiple services provided by livestock beyond food and needs to reflect the wider role of animals as productive and cultural assets, so that livestock system specialization does not exclude these services and functions from the production process.

**Recommendation:** The report should recognize that livestock animals are sentient productive assets with multiple functions rather than commodities and concomitantly that the protection of and care for them will enhance their productive value and functional relevance sustainably.

**Specific points:**

- Figure 1. Important influences on consumption are missing, like marketing and education. For example, the Yale Rudd Food Center for Food Policy and Obesity found that only in the US, fast food companies spend 4.6 billion dollars annually on marketing of which more than one billion is directed at children aged 6-11. These companies would not spend these staggering amounts of money if this did not have profound impacts on food choice. [http://www.fastfoodmarketing.org/media/fastfoodfacts_marketingrankings.pdf](http://www.fastfoodmarketing.org/media/fastfoodfacts_marketingrankings.pdf)

This issue is (very briefly) mentioned on page 41, but not followed up in the analysis and recommendations.

- ‘Agricultural production itself depends on healthy agro-systems’ p.21, line 22/23. What is meant by this? At other points the report recognizes that a lot of agricultural production is actually the result of systems that are not healthy.

- ‘animals are an essential part of these cycles’ p.21, line 27. Insert ‘often’ after ‘are’. Explanation: (many) agricultural systems exist without livestock component (based on synthetic, plant based and/or inorganic fertilizers and crop rotation), other agricultural systems do have a livestock component, but one which is not necessarily essential. Moreover, it is not really clear what is meant by ‘these cycles’. ‘there is a wide variation on acceptable ways to treat farm animals’ p.58, line 50. Delete the word ‘acceptable’ as this is in direct contradiction with the sentence before and the rest of the sentence.
there would indeed be a wide variation on acceptable ways, then it would be easy to reach consensus and no controversy would exist. Moreover, it is unclear who thinks that these widely varied ways are acceptable and why.

90. Marilia Rangel Campos, International Poultry Council

Dear Sir, Madam,


The attached document reflects the positions that are common from those sector, however, they are not exhaustive and some of the associations mentioned above have also submitted separate comments related to their sectors.

Please do not hesitate to contact us should you have any questions

COMMENTS FROM THE LIVESTOCK SECTOR GROUP

INTERNATIONAL DAIRY FEDERATION (IDF)
INTERNATIONAL FEED INDUSTRY FEDERATION (IFIF)
INTERNATIONAL MEAT SECRETARIAT (IMS)
INTERNATIONAL POULTRY COUNCIL (IPC)

CFS-HLPE DRAFT V0
Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock

The livestock sector appreciates the opportunity to provide comments on the CFS-HLPE Draft Version 0 Sustainable Agricultural Development for Food Security and Nutrition, including the role of Livestock. As a sector, we are ready to continue to collaborate and strengthen sustainable food production and to help contribute to dietary quality and nutrient adequacy around the world through the provision of safe, affordable, nutritious and sustainable feed and food.

We believe that only by working together with all stakeholders in the feed and food chain, including governments, the private sector and non-governmental groups, can we meet the demands of 60% more food, including animal proteins like beef, poultry, pork, eggs, fish and dairy products in the future. As we work together we will continue to champion science-based decisions, the need for continued innovation and better technologies, as well as regulatory convergence and free and fair trade.

The comments presented below are a compilation of the main aspects presented in the individual comments submitted by the International Dairy Federation, International Meat Secretariat, International Feed Industry Federation and the International Poultry Council. The comments are not exhaustive and do not present mentions to specific sectors.

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?
The V0 is a comprehensive review of sustainable agriculture development and sustainable food systems, supported by science-based evidences and country and sector specific cases. There is an inclination to agriculture in developing countries and smallholder farming systems. The Food Security and Nutrition is a global issue and has to comprise all farming systems, regardless of size, intensification levels or systems, acknowledging the benefits of modern agriculture and livestock production to the world population and to a growing demand for food, given the increase in income and urbanization levels.

We strongly believe that environmental sustainability performance depends on management practices and skills within different production systems. Multilateral dialogues among stakeholders promoted regionally are an effective way to address sustainability challenges and seek improvements.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

As far as the structure of the report is concerned, the livestock sector would like to stress the importance of putting environmental challenges of food production in relation to the contribution of essential nutrients. Debate should not be simplified by focusing only on a single environmental aspect or by comparing single nutrients or food items.

In this sense, it would be important to have a structured classification of existing diets, in order to identify challenges and opportunities for different ASFs in a dietary context, in a more accurate way than it is done in Table 1, page 59.

A chapter on the crucial role of infrastructures is missing. It is crucial that countries and regions make roads, waterways, railroads and other tailor made efficient, quality transport means available for everybody. Producers must be able to transport their produce to cities or further away, and able to get new equipment and other means to their often remote production areas via high quality, convenient roads. It is the task of governments to provide these - this is the best way to ensure that small producers and poor regions will get an opportunity to work themselves out of poverty. Equally important are schools for all, agricultural education at all levels, working supporting institutions, banking and loaning opportunities for all at rates and conditions comparable with those in developed countries.

In addition to that, a glossary for terms and abbreviations used and an executive summary with key points would be helpful.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

The production systems represented by several livestock sector players does not fit in any of the proposed categories of livestock systems. There is a need for diversified categories that can actually address challenges and opportunities, as well as a revision on the description of those categories.

4. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

The report could explore the new climate change mitigation technologies that are being developed and the challenges for successful their development and adoption.
It should also bring more focus to the social and economic aspect of livestock production and its capacity of generating income, creating jobs and keeping people to their land. Productivity will have to increase and efficiency gap will need to be reduced, but it will only be possible with new technologies and intensification of production.

5. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?
   Yes, it seems to be useful and pragmatic.

6. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?
   Specific case-studies are provided in the comments submitted individually by each livestock sector organization.

7. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

   Livestock sectors are responsible for the creation of millions of jobs around the world and for generating income from the land and avoiding a migration from rural to urban areas. There has been a large focus on the role of agriculture at the production base but less of an emphasis of the economic value of the creation of value chains and its economic impact and the cost/benefit of producing and providing food to consumers in country. The ability of the country to develop value chain markets and feed people has a rippling effect through the economy. Livestock is uniquely able to build value chains through the cooperative and integration systems.

8. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

9. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

   An analysis of public investment in the livestock sector should be included in this report. This is important since public investment in the livestock sector has not been increasing, despite increases in livestock’s contribution to agricultural GDP.

   The authors rightly point out that subsidies have typically been provided for productivity, making farming systems less vulnerable to climate change, and harnessing agriculture to deliver more environmental services. While these are positive uses of subsidies, the agriculture sector as a whole has had a decrease in the level of funding for research and innovation and applied research and extension. We need an
increased focus on technology transfer and an increase in funding to support worldwide soil research, and in particular to agriculture, the investment in manure as a resource for soil amendment and fertilizer.

10. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

11. Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

The importance of the prudent use of antibiotics should be mentioned in the report. Prudent uses of antibiotics are necessary in animal husbandry in order to take care of animal welfare, avoid chronic infected animals, and have a sustainable animal husbandry. Sick animals with pain and suffering should be treated in a correct way to have a good animal welfare and avoiding developing chronic infections. At the same time healthy animals should not be treated as part of a routine or management system, as well as treating chronic infected animals that cannot recover to healthy state should be avoided.

Additionally, a more comprehensive approach to the role of animal welfare in the livestock sector should be included.

The authors point out the increase in agriculture’s use of nitrogen, but fail to mention the potential role of livestock in cycling nitrogen through animals and providing nitrogen that then can be used to offset the importation of new nitrogen to a watershed. The panel would do well to look at the nitrogen cycling potential of animals and the role of manure to offset imported nitrogen to watersheds.

91. Shefali Sharma, Institute for Agriculture and Trade Policy (IATP), United States of America

IATP Comments on V0 draft of the Sustainable agricultural development for food security and nutrition, including the role of livestock report

November 16, 2015

The Institute for Agriculture and Trade Policy (IATP) is pleased to submit our comments on the VO draft of the HLPE Report on “Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock. A report that addresses FSN in the context of sustainability in the livestock sector is not only timely, but critical as meat and dairy production becomes rapidly industrialized around the globe. The HLPE can and should play an extremely valuable role in this debate.

At the outset, we note that along with other members, IATP contributed to the Preliminary CSM Comments on the HLPE Zero Draft Report on “Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock” – October 2015; as such we fully endorse the CSM comments. We further note that the formation of the HLPE is meant to “lead to more informed policy debates and improve the quality, effectiveness and coherence of food security and nutrition policies from local to international levels” particularly as it assesses and analyses the underlying causes of food insecurity and nutrition (HLPE website). The biggest challenge, therefore, to the improvement of VO is how the next draft will integrate the question of Power when considering FSN, particularly for the most vulnerable communities and for food systems where people are at its center. Enhancing FSN for communities such as
herders in Mongolia or female headed households in sub-Saharan Africa through agro-pastoral systems that are just, humane and which sustain health and the environment requires empowering these communities. It also means addressing the gross power imbalance in the global food system which is controlled by a handful of corporations. Oligopoly and near monopoly is also endemic in global livestock trade and its supply chain. We hope that our detailed comments below with extensive references will help in addressing that challenge.

We highlight here the key issues that need to be addressed in the next draft: (For more details, please see our extensive comments below.)

1) The context and conceptual framework aligns with a “business-as-usual” (BAU) paradigm even whilst critiquing it. Thus the paper leans towards a “productivist” approach with estimates for future demand for food (and in particular livestock products) that essentially requires strategies for growth in production to meet FSN. Projections of “demand” for future production are flawed from multiple perspectives:

   a) Estimates of market size depend on very specific assumptions and should not and need not be taken for granted (Tomlinson 2011; Wise 2013)

   b) Projections of demand based on total economic size on a currency value basis, not on a kilogram, calorie, or nutritional basis (Boucher 2015). may make sense from a certain economic perspective; however, it does not make sense from a food security perspective—different foodstuffs can have radically different per-weight or per-nutrient monetary values, making these projections not just comparing apples to oranges, but comparing oranges to beef.

   64. c) “Demand” as defined by “market-based demand” only makes sense with certain assumptions about prices as well. The paper largely ignores the continued externalization of a large amount of costs from agriculture (e.g. Pretty et al. 2001; KPMG 2012). If environmental costs are, as KPMG estimated in 2012, twice the earnings for food producers, it makes no sense to base future (sustainable) demand projections on prices that have not dealt with these externalities.

   d) The potentially huge impact (and distortions) from food advertising need to be recognized throughout the paper (see e.g. Popkin et al. 2012; Stuckler and Nestle 2012; Cairns et al. 2013). It would be useful to look at Brazil’s food guidelines (e.g. “Be wary of food marketing”) and their evaluations (e.g. Monteiro et al. 2015). It is not meaningful to look at consumption of meats and unhealthy consumption outside of social/commercial advertising environment.

65. 2) The paper lacks a genuine FSN framework and in addition should integrate alternative analyses such as Rocha’s Five A’s (Availability, Accessibility, Acceptability, Appropriateness, and [Political] Agency) which also incorporate food safety and sustainability (Rocha 2007; Chappell and LaValle 2011; Chappell et al. 2011).

3) The paper suggests “sustainable intensification” as an unavoidable pathway, but fails to define what this means for FSN and sustainability other than a more manageable BAU. In fact, food security and farmer livelihoods. The authors suggest that “smallholder” type will not provide all the food we need for 9 billion people, positing that intensive systems will play their part. But there is no recognition of the converse—that intensive systems have not and will not feed everyone, and that their environmental and social costs cannot be indefinitely borne. As stated in Schneider and Chappell’s Forthcoming paper in 2016: “How—and to whom—can it be justified to continue to expand current food and agriculture systems, with the inevitable costs to the environment rather than taking less resource-intensive paths of redistribution and social and economic empowerment?”

4) With regards to chapter 2, Trends and Drivers: “sustainability” in its broadest interpretation includes both distributive and procedural justice (Loos et al 2014). This entire element of sustainability is omitted in this section. How have the increases in meat consumption been distributed—not just between
countries, but within countries among different groups and socioeconomic classes? How were livestock systems’ development decided on (procedural justice) and who were the decision makers? What was the role of expropriation and unjust policies (e.g. as happened in the Amazon, among other places). How about the violence bred in some places by livestock agriculture’s expansion? Justice, rights, and social trends, drivers, and events must be included if this chapter is to be scientific and not simply a political exercise with no reference to the actual historical evolution of how different types of livestock systems fared as a result i.e. industrial production vs. small holder mixed use vs pastoralism.

5) Policy drivers are not significantly explored. For instance, the role of policy in driving the rapid corporate consolidation taking place in the industrial livestock sector or dumping and lack of enforceable competition policies that addresses oligopoly and monopoly in the food system (with producers having to sell grains at below the cost of production) or the provision of “cheap meat” through economies of scale etc. is all ignored. Conversely, policy pathways are not adequately explored in addressing price volatility (i.e. grain reserves), integrating the externalities of the intensive system, the types of policies needed to eliminate oligopoly and corporate control of food systems.

6) In the “Challenges” section, the social analysis could also integrate agroecology, which has a strong and growing focus on women’s rights and gender equality (Fitzpatrick 2015), a focus that is being continually strengthened by the concept and commitments of food sovereignty (Chappell 2013) and the related agroecology and food sovereignty movement (Desmarais 2007; La Via Campesina 2015). Issues of gender are, naturally, complex and locally-specific, and may need different approaches even within the same small community. An appropriate gender based intervention should be right-based and not place additional disproportionate burdens on women to support and improve community development.

6) The section on trade seems superficial. The reality that trade liberalization has had mixed results with regards to food security is a major contributor to the failure to conclude the Doha Round at the World Trade Organization. Many of the models of the Doha Round indicate that some developing countries would not benefit from deeper integration through trade liberalization, while a few countries would capture almost all the expected gains. An outgrowth of international trade rules has been the decline of policies that support local food systems – in particular food reserves. The dismantling of national and regional level food reserves has left countries more vulnerable to global shocks – whether they be market or climate-related. The institution of regional food reserves is an important tool, not only for climate adaptation, but also market stability and hence stability of prices for farmers to make necessary investments in agriculture. This needs much greater attention.

7) The section on environment under “Challenges,” while acknowledging some of the problems of confined animal feeding operations (CAFOs) does not draw a clear enough line on the dramatic differences between the intensive CAFO model of animal production and grazing and pasture-based animal production. The differences are very significant in terms of their impact on the environment and climate; but also in building climate resilience through adaptation.

8) Under “Health and Animal Welfare,” it is inaccurate to say “the evidence from the literature is insufficient to draw firm conclusions on the extent of [] contribution” of animal agriculture to antibiotic resistance. The CSM submission has listed a number of peer reviewed studies that show the link between animal agriculture and the “burden of resistant infections.” IATP has also compiled a 147 studies that show this link: “Ever-strengthening science—hundreds of studies to date—ties the spreading epidemic of resistant infections in humans to routine antibiotic use in food animals” (Jia and Wallinga 2012). Antibiotic resistance is a global phenomenon and the extent of the problem in one region or “context” impacts other regions. The authors should revise this section based on current evidence.

9) Many of the recommendations seem of a general nature and do not necessarily speak to the content of the report itself (which needs to be revised considerably). In the second iteration, we recommend that
policy pathways and recommendations be derived based on a sound critique of the policy drivers and trends that have shaped the global livestock sector today.

**Detailed Comments**

**Introduction; Context and Conceptual Framework (pp. 7 -22):**

This introductory section lays out the context & conceptual framework. It reviews a fairly mainstream narrative of the needs for the future, posing the challenges of producing more food for a richer, growing population while also paying attention to sustainability and continued food insecurity. Although it does emphasize more than just production factors, and even reviews critiques of “productionism”, it is a profoundly markets, growth, and production-oriented introduction, which comments on social drivers and equity but spends most of the time on projections and various statements of the need for continued growth. It places livestock agriculture into this context, noticing the disproportionate projected growth in livestock demand, the significant footprint/hoofprint of livestock agriculture in terms of contributions to climate change, and to total size of the agricultural economy. It posits increased demand for livestock as having potential to particularly help the food insecure/poor because of its projected growth as a sector and comparative high value as opposed to primary crop production. Diversity is alluded to, and sections specifically summarize the debates on sustainable intensification and food sovereignty. Nonetheless, the implicit tone is very much in line with mainstream approaches for expansion of the current system: the section does not make at all clear what the report might suggest as breaking from business as usual, despite saying (p. 10, line 45) that “the report argues that business as usual is not an option for the future.”

**Critique**

As implied above, the main critique is that this section is very much from a perspective that **aligns with a business-as-usual paradigm.** Although it cites important critiques and limits to business as usual, the implications of the analysis offered in the Introduction is that something like “more and better” growth in agricultural “development” needs to be pursued. It does not at all articulate how its analysis departs from a BAU analysis, or argues against BAU. In point of fact, the Introduction serves best as an argument for BAU, or maybe “BAU+” (increase production, trade liberalization, but do it better), and it is hard to see how it in fact serves as a foundation for the claimed opposite: “business as usual is not an option for the future.”

There are five paramount omissions/oversights in the introduction:

1) Although food (in)security is a major departure point for the Introduction, it does not directly engage some of the most important contemporary works on food security. This includes Sen’s critiques of a production-oriented approach, elaboration of the “Entitlements” approach to food security, and subsequent refinements/critiques (Sen 1981; Dreze & Sen 1989; Devereux & Naeraa 1996; Devereux 2001; Fukuda-Parr 2002); examinations of the creation of vulnerability (e.g. Robbins 2001; Ribot 2014); and most importantly, empirical work on how food insecurity has decreased (Smith and Haddad 2000, 2015; Smith et al. 2003).

2) This under-emphasis is particularly important with respect to gender, which should be a primary issue from the start. Quoting Smith and Haddad 2015:

   “For South Asia, while continued improvements in women’s education and food availabilities are needed, three of the determinants should be of particular focus: access to sanitation, dietary diversity of the food available in countries, and gender equality. For Sub-Saharan Africa our empirical results point to access to sanitation, women’s education, and gender equality as key priority areas...”

   “...[N]ational food availability does not feature near the top of the priorities for accelerating undernutrition reductions in either South Asia or Sub-Saharan Africa. This
does not reduce the importance of maintaining adequate food supplies, including food production, but simply acknowledges that the scope for it to reduce stunting prevalences is lower than that of the priority underlying determinants we have identified. Just maintaining food supplies is going to require an enormous collective effort in the coming years, so reducing investment in agriculture is not recommended.”

Agarwal (2015) and Ghosh (2010) have also emphasized the importance of gender in alleviating malnutrition and improving productivity. R awe et al. (2015) have also recently written to the key potential and importance of approaches that prioritize gender equality, women’s empowerment, and women’s education.

3) This introduction ignores the important, growing, and arguably “heterodox”, but nonetheless prominent alternative hypotheses and proposals around food security, which often further back analyses from the perspective of food sovereignty. These include Patel’s re-examination of the motives and framework of the Green Revolution (2013); Das’s (2002) empirical and theoretical conclusion that livelihood improvements in India were due to state action outside of technology change in the Green Revolution; and Chang’s (2012) examination of successful agricultural development approaches:

“Land reform is today supported in only very muted and market-based forms (e.g. no ownership ceilings), but Japan and other East Asian countries had a very successful comprehensive land reform system that included strict landownership ceilings... State-backed specialized rural banks and credit subsidies are only reluctantly accepted by the NCW [New Conventional Wisdom], but all of today’s rich countries used these devices. Profit-driven micro-finance is favoured over credit co-ops in the current orthodoxy, but many of today’s rich countries used the latter successfully. Ghana’s rural banks, half owned by the government and half by the local community, are an innovative variation on the theme... While marketing boards are routinely denounced by the orthodoxy, especially in sub-Saharan Africa, Denmark and some other European countries had benefited from effective export marketing boards... Co-ops are these days not exactly discouraged, but the central role that they played in the development of agro-processing and marketing in Denmark, Germany, Sweden and Japan are not sufficiently emphasized by the proponents of the NCW... Price stabilization measures are frowned upon by the NCW, but many of today’s rich countries used them and some had great success with them, such as the USA and Japan. More recently, Chile has used a very effective price stabilization scheme... Facilities like state-subsidized agricultural insurances, public provision or subsidization of warehousing facilities, and input (e.g. fertilizer) quality control were some of the very effective policies used by today’s rich countries (and some of today’s developing countries, like Chile in the case of state-subsidized insurances). These policies are not actively objected to by today’s orthodoxy, but they are not given sufficient attention... All these issues suggest that the contents of the agricultural policy tool-box for today’s developing countries will be significantly enriched if history is taken more seriously.”

Similarly, this introduction does not take the evidence amassed in this and similar works sufficiently seriously, alluding to problems with conventional approaches but not treating the alternative analyses and proposals with sufficient weight and thoroughness. Or in other words, treating the Green Revolution as a learning process, as recommended by Harwood (2013), who focuses on the success stories of deeply participatory, locally-focused extension efforts that are today rarely analyzed.

4) In the vein of alternative analyses, the HLPE may want to consider Rocha’s “Five A’s of Food Security” as approach alongside “Availability, Access, Stability and Utilization”. One of the limits of
the latter is that it does not have an easy or agile way to deal with political agency, the proposals of food sovereignty, the right to food, or Sen’s Entitlements. Rocha’s Five A’s (Availability, Accessibility, Acceptability, Appropriateness, and [Political] Agency) also incorporate food safety and sustainability (Rocha 2007; Chappell and LaValle 2011; Chappell et al. 2011), and may be a useful model to consider alongside the common AASU approach.

5) The comments in this section on growth in livestock as a key opportunity for smallholders also ignores potential of higher margins for farmers. Part of appeal of livestock is value-added because baseline materials (grains) are often so cheap as to be near or below cost of production. Improving margins and returns to farmers—even in the form of higher food prices—has mounting evidence of being a way that improves poverty *across the economy*

Specific comments:

p. 7, lines 9-34: Reference certainly ought to be made here to Smith and Haddad (2015), which looks at progress in food security in the post-MDG era and reviews how progress has happened and what the strongest levers are for progress in the future. Their piece makes it very clear that access to sanitation, women’s education, women’s equality, and dietary diversity are among the strongest drivers for improvements in food security in the future (based on reductions of childhood stunting). This analysis is reinforced by, among other works, Headey and Ecker 2013, which found that “overall, dietary diversity indicators are the best performing class of indicators: they are powerful predictors of economic status and malnutrition (both stunting and wasting), sensitive to shocks, and relatively cheap to measure,” outperforming subjective indicators, poverty measures, and calorie-based indicators.

p. 8, line 6: These estimates (~800 million) of the undernourished are arguably too conservative (Lappe et al. 2013; Lappe and Collins 2015) and don’t take into account alternative measures (e.g. Headey and Ecker 2013).

p. 8, lines 4-11 (and elsewhere dealing with demand and population projections):

- As Africanist Ann Larimore has pointed out, assuming the medium-range population projections means assuming limited progress in improving the status of women. Improved gender equity in so-called Less-Developed Countries can have powerful effects on slowing population growth (Sen 1994; Sen 2001).
- Projections of “demand” for future production are flawed from multiple perspectives. Although the report does refer to them as scenarios or projections rather than predictions or needs (as Wise, 2013, recommends), it does not clarify that these estimates of market size depend on very specific assumptions and should not and need not be taken for granted (Tomlinson 2011; Wise 2013), though it appropriately does not use the quite inaccurate “doubling” estimates (Tomlinson 2011). However, it further does not clarify that these estimates are in dollars—or in other words, are projections of demand based on total economic size on a currency value basis, not on a kilogram, calorie, or nutritional basis (Boucher 2015). And as Boucher points out, although this may make sense from a certain economic perspective, it does not make sense from a food security perspective—different foodstuffs can have radically different per-weight or per-nutrient monetary values, making these projections not just comparing apples to oranges, but comparing oranges to beef. It would be akin to estimating salary increases based on historical salary projections, and then implying that a (say) 60% salary increase was necessary by 2050, rather than dealing with the fact that such a simple projection says nothing about necessity from the point of view of sustainability or food security. While this report perhaps cannot resolve this problem, ignoring the fact that the total economic size of the relevant sector is not connected in a straightforward way to food security or sustainability is inappropriate.
- Lastly, “demand” as defined by “market-based demand” only makes sense with certain assumptions about prices as well. The contemporary assumptions in demand increases “bake in” the continued externalization of a large amount of costs from agriculture (e.g. Pretty et al. 2001; KPMG 2012). If environmental costs are, as KPMG estimated in 2012, twice the earnings for food
producers, it makes no sense to base future (sustainable) demand projections on prices that have not dealt with internalization.

p. 9, line 1-2: Aren’t urban areas later pointed to as a locus of malnutrition?

p. 9, lines 30-36: [Crop/livestock productivity must grow]. This appears to be a series of propositions that are not supported by the evidence. It is said that productivity is “a fundamental requirement,” continuing on to imply that it should be viewed along with other elements, but giving productivity primacy of place. Several lines of evidence and researchers argue against this framing, including Loos et al. 2014, who say

“In the context of food security, food production and food distribution cannot be meaningfully analyzed separately. We believe a more appropriate way to conceptualize food security is to recognize that there are a series of filters that determine the extent to which intensification is sustainable and contributes to greater food security. That is, unless it meets the demands of both distributive and procedural justice, increased food production cannot be described as sustainable.”

Lines 30-36 take a rather more equivocal tact, despite the evidence for the above proposition. Since the paragraph looks at not only food security, but sustainability, it is a premature judgment to say increased productivity is a fundamental requirement to address the various challenges. It is clearly, for example, not a requirement for controlling environmental impact any more than it is a requirement for nutrition: redistribution and reduced waste would be sufficient (e.g., Tilman and Clark 2014), and perhaps substantially boosted by certain approaches to localized production (Brown et al. 2014). While outcomes like redistribution & waste decrease may be viewed to be difficult, there is no scientific reason to assess them as impossible, so labeling instead productivity increases as a “requirement” is a value- or at least a probability-based judgment. The possibilities of reduced waste and equitable distribution must be raised, with transparency in judgement of desirability and possibility. “Requirement” is rhetorical and not rigorously correct. In sum, it cannot be said to be a fundamental requirement when leading syntheses determine that it is not (e.g. Smith and Haddad 2015; see also recent report by the Office of the Director of National Intelligence 2015. E.g., “Simply growing more food will not result in more food-secure countries... the greatest potential to relieve food scarcity will be through investments in infrastructure, technology, and education to improve the food supply chain while using fewer resources. Less than 5 percent of all agricultural research and development (R&D) is expended on reducing food losses and waste, according to academic research.”)

p. 9, “Economies of scale” in the report are cited without taking externalities into account which makes them arguably invalid. The returns to scale may be very different when proper costs are included (see e.g. Pretty et al. 2001; KPMG 2012; Sandhu et al. 2015 for estimates of externalities). Additionally, as Rocha (2007) says, social and economic efficiency are not the same. The report should distinguish these.

p. 11, Lines 14 – 17: see previous comments on measuring malnutrition.

p. 11, Lines 18-19: “new approaches are needed” – how does this jibe with, for example, the research of Smith & Haddad (2015), which finds that increasing sanitation, women’s education & equality, and dietary diversity are clear and important fundamental drivers of improved food security? Is it new approaches, or improved use of under-utilized/ignored approaches? (Harwood 2013)

p. 11, Lines 22-23: It seems important here to quote not just percentages, but absolute numbers: the 23.2% undernourished in Sub-Saharan Africa is 220 million people; the (seemingly lower) 15.7% undernourished in Southern Asia is in fact 281 million people. (From the same FAO/IFAD/WFP 2015 report cited by HLPE.)

p. 1, Lines 33-42: The idea that obesity is mainly a problem for the rich in low-income countries seems to be outdated. But the article cited by Popkin et al. (2012) says “The general impression has been that in
higher-income countries we often find greater obesity rates in rural areas and among the poor—the reverse of what is seen in lower-income countries. However, new evidence suggests that these patterns are changing, and the increasing rate of obesity among the poor has important implications for the distribution of health inequalities.” Popkin et al. cite studies from Mexico and China, among others, indicating this. This passage seems to need further nuance, at the least.

p. 12, Lines 5-6: Agricultural development also can’t be called sustainable without procedural and distributive justice, cf. Loos et al. (2014).

p. 12, lines 10-13 and throughout: Established debates have often not seriously countenanced the full social and environmental costs of our food systems for the most part, which would potentially alter the questions of direction of change. The conversation of externalized costs must be broached here. See e.g. Pretty et al. 2001; Rocha 2007; KPMG 2012.

p. 13, Lines 20-26, and elsewhere: The potentially huge impact (and distortions) from food advertising need to be recognized here and throughout. See e.g. Popkin et al. 2012; Stuckler and Nestle 2012; Cairns et al. 2013. It would be useful to look at Brazil’s food guidelines (e.g. “Be wary of food marketing”) and their evaluations (e.g. Monteiro et al. 2015). It is not meaningful to look at consumption of meats and unhealthy consumption outside of social/commercial advertising environment.

Concerns about concentration in industry should also be mentioned here, e.g. James et al. 2013, and discussion in Lang and Barling 2009. See also Bhuyan 1988 and Parker and Connor 1978.

p. 13, Section 1.2 Projections: The idea of a “needed increase” is not consistently borne out, and should not conflate projection (60%) with necessity (see previous comments; Wise 2013; Boucher 2015; Tomlinson 2011).

pp. 14 -15: This section should explicitly address analyses such as those by Perkins (1997); Patel (2013); Das (2002); Harwood (2013), among others, that give an alternative analysis and take on these questions.

p. 15 – With regards to the questions of “local production”, Brown et al. (2014) should be examined and cited here. They find differing assumptions can dramatically change the implications of expanded trade versus regionalization, and under a number of conditions, regionalization may optimize both ecosystem function maintenance and production.

p. 15, Lines 33-38: “The solution is not to slow agricultural development”: this is insufficiently unpacked. What does it mean to “slow” agricultural development? Not all development is the same, and not all development benefits different groups the same. This passage side steps the questions of what type of development needs to be approached and for whom. For a similar critique on growth, see Hoy 2015.

p. 16, Lines 1-10: The report should similarly note lack of high quality studies on what and how productivity is actually boosted – there are actually very few rigorous, high-quality studies that have done this for ANY context: Loevinson et al. 2013.

p. 16, Line 11: The Social dimension: has been addressed in qualitative analyses (e.g. Chappell et al. 2013; Perkins 1997; Patel 2013; Lappe and Collins 2015; Haddad 2015; Chappell and LaValle 2011), among many others, but is not well-appreciated in mainstream analyses and offers contradictions to mainstream narratives that may partially explain why these studies are less in the spotlight. Yet social science—much of which is appropriately qualitative (e.g. Bardhan and Ray 2006)—cannot be dismissed when trying to get a grip on social dimensions. And even quantitative research has clearly shown the strength, and arguably primacy of social dimensions rather than technical (Smith and Haddad 2015).

Chapter 2: Trends & Drivers (pp. 23 – 44)

Summary:
This chapter appears to aim at elaborating ONLY the market-fetishizing forces and trends behind livestock expansion and future consumption. It looks at standard projections of growth in demand (and supply); takes a very limited look at the “role of livestock in agri-food systems”; has a somewhat superficial treatment of health effects of meat consumption; develops (but does not particularly defend) a particular classification system (typology) of animal agriculture, and gives a highly simplified examination of intensification and production. This is followed by an elementary treatment of prices, which ignores the role of social policies, commercial interests, advertising, product formulation and processing, consumer power (or lack thereof), health and safety policies, and externalities altogether. A brief summary of “social elements” that is almost entirely tied to urbanization is next, then quick examinations of food loss and trade before its concluding comments.

**Critique:**

This chapter reads as an advertising campaign from a livestock checkoff organization: projections of demand, and bland generalities about potential challenges and pitfalls, with a story that treats the evolution of the livestock sector as having been driven almost entirely by benign—or at worst, inexorable and amoral—market and economic forces. There is no examination or recognition of historical contingencies, deliberate policy choices favoring or disfavoring different kinds of agriculture and livestock approaches, externalities, justice and distribution—none of these are dealt with to any meaningful degree whatsoever. In fact, food security and farmer livelihoods additionally take up almost no space whatsoever and the expansion of the livestock sector is implicitly assumed to be (mostly) good, natural, inevitable, and feasible—with an admission that “smallholder” type will not provide all the food we need for 9 billion people (which is false; it won’t provide all the food we “demand” while externalizing costs for 9 billion people), positing that intensive systems will play their part. There is no recognition of the converse—that intensive systems have not and will not feed everyone, and that their environmental and social costs cannot be indefinitely borne. As stated in Schneider and Chappell’s Forthcoming paper in 2016: “How do we decide—and who gets to decide—to pursue intensified agricultural production instead of, or in addition to seeking to redistribute the food already produced? How—and to whom—can it be justified to continue to expand current food and agriculture systems, with the inevitable costs to the environment rather than taking less resource-intensive paths of redistribution and social and economic empowerment?”

**Specifics:**

Section 2.1 as a whole: See earlier comments on projections (e.g. for p. 8, lines 4-11). Two major problematic issues:

1) There is no recognition that these projections are on a dollar-basis, which is “meaningful” (arguably) for the economic analysis here, but is rather detached thoroughly from sustainability and significantly from food security. As written above, “these estimates are in dollars—or in other words, are projections of demand based on total economic size on a currency value basis, not on a kilogram, calorie, or nutritional basis (Boucher 2015). And as Boucher points out, although this may make sense from a certain economic perspective, it does not make sense from a food security perspective—different foodstuffs can have radically different per-weight or per-nutrient monetary values, making these projections not just comparing apples to oranges, but comparing oranges to beef.”

2) Also as said previously, neither the malleability of demand based on prices, nor the huge uninternalized costs that (arguably) should raise prices are considered. If the authors believe that it is reasonable to ignore externalities which appear to exceed revenues (see http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Final_Natural_Capital_Impacts_in_Agriculture_-_Supporting_Better_Business_Decision-Making_v5.0.pdf), then they must review literature justifying/critiquing estimates of “True Costs”, OR make an explicit argument as to why a continued failure to integrate/internalize/address externalities is sustainable, just and sensible, or altogether scientifically defensible.
p. 23, line 11: “be sustainable (in its broadest interpretation)” – this is clearly not what is done here, as sustainability in its broadest interpretation includes both distributive and procedural justice (Loos et al 2014). This entire element of sustainability—of society altogether—is omitted in this section. How have the increases in meat consumption been distributed—not just between countries, but within countries among different groups and socioeconomic classes? How were livestock systems’ development decided on (procedural justice) and who were the decision makers? What was the role of expropriation and unjust policies (e.g. as happened in the Amazon, among other places). How about the violence bred in some places by livestock agriculture’s expansion (such as pistoleiros hired by radically rich cattle barons in Brazil who have violently suppressed those resisting certain forms of expansion, and bribes from rich livestock owners and companies that have tilted government policy min their favor)? Justice, rights, and social trends, drivers, and events MUST be included if this chapter is to be scientific and not simply a political exercise in telling the evolution of the sector in purely economic terms with no reference to the actual historical evolution and how different types of livestock systems fared as a result i.e. industrial production vs. small holder mixed use vs pastoralism.

p. 23, Lines 25-48: See again comments on projections. These projections, specifically, are in dollars and so the work here should (a) acknowledge this; (b) offer the possible justifications AND critiques for doing so; (c) analyze the implications of projections based on dollars; (d) present as part of their suite of projections, alternative approaches to doing this. (Tilman and Clark 2014 is one possibly appropriate alternative approach).

p. 24, Lines 16-24: There is no discussion of distribution, redistribution, or rights. For example, Peter Singer on Climate Change: [http://www.ingentaconnect.com/content/whp/ev/2006/00000015/00000003/art00014](http://www.ingentaconnect.com/content/whp/ev/2006/00000015/00000003/art00014). If not from Singer – the question of how much meat each person may “deserve” (distributive justice) should be broached. Is it allowable or desirable for radically different meat consumptions to continue based on income? And since a Western Diet for all is impossible, should the “projected” demand simply be presumed to be optimal? If it is not, from emissions, health, or equity perspective optimal, what other distributions can or should be countenanced? By rejecting any consideration of equity or justice, the HLPE report is delict in offering scientific examination of alternatives and offering an incomplete social analysis. See also, for instance, the Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report) to the Secretaries of the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) [http://health.gov/dietaryguidelines/2015-scientific-report/](http://health.gov/dietaryguidelines/2015-scientific-report/) which recommends that sustainability (i.e. externalities) be a factor in determining dietary guidelines and suggests a reduction in processed and red meats in order to address nutrition and food security for future generations.

p. 24, Lines 29-33: Do the authors have any suggestions for improving this? The failure to deal with anything besides availability is extremely problematic (see e.g. Headey and Ecker 2013; Barrett 2012). Further, the authors fail to discuss agricultural production from the point of view of trade, financialization, and (in)stability—resulting in food security instability from a global perspective.

p. 25, lines 9-16: What about a scenario that consciences internalizing the external costs? Again, there should be a continued and through-going acknowledgment of and grappling with externalities, and how these will/might affect projections, costs, consumption, sustainability etc., and the effects of NOT internalizing them.

p. 26, lines 1-11: There is no discussion here of the distribution of income – for example, the implications of Hoy 2015 – and thus distribution of (increased) consumption. A report at this level should be attempting to disaggregate broad numbers in production, profits/livelihood, food availability, and impacts. To do otherwise obscures vitally important issues.

p. 29, 3rd paragraph (in box): Aggregated food availability, as outlined above, is a very poor proxy/measure. Authors should follow either the FAO’s latest State of Food Insecurity methodologies
which weigh availability/consumption likelihood by income distribution; or look at numbers that have been consistently available in many countries, such as child stunting (e.g. Smith and Haddad 2015).

p. 29, 5th paragraph: They note that the share of animal products has remained nearly constant. It would seem like this merits further explication and examination – as they state in the next paragraph, there are differences with the typical “Western” diet. Given the desirability of an “atypical” nutrition transition, why are they not suggesting examining how production, imports, prices, supply, and demand have acted in the Mediterranean and delineate any implications for, say, lowering meat overconsumption?

p. 32, Lines 36-42: There is no examination of the changes this might bring in the provision of ecosystem functions, and environmental and public health goods and bads. Though they mention expropriation, there is no appreciable consideration of it as a “trend” or “driver”, nor its long-term effects on ecosystems and people, particularly with regards to stability (both in terms of climate and finance) and resilience.

p. 33, Lines 1-2: This is a perfect example of naturalizing this evolution, behaving as though “under certain circumstances” such an “evolution” just happens—not the lengths that vested interests have gone to to make it so. (See Christopher Leonard’s *The Meat Racket.*)

p. 33, Lines 14: “economies of scale” should be “apparent economies of scale”, given that we know significant externalities are not accounted for.

p. 34, lines 35-41: The policies at play here, and the cycles of expropriation, consolidation, and externalization should be discussed at greater length. Given that this section is supposedly “Trends and Drivers”, why are POLICY drivers not SIGNIFICANTLY explored? This right here is an area ripe for such an exploration and at least beginning to recount how and why certain policies were implemented in political science terms (not just “driven by economic growth”, which is also a policy choice). The role of dumping, structural adjustment, grains at below the cost of production etc. is all ignored.

p. 35, Lines 1-4: There is no recognition here that this decrease in mixed farming systems has led to the displacement of many, many farmers, which should not be seen as altogether positive. Also, there should be a recognition that it is completely unclear urban areas can provide for a further wave(s) of dispossessed displaced farmers and rural workers, given that the industrial jobs of the past are not there to support millions more to “pull themselves up” (insofar as that narrative applies at all). (E.g. Araghi 1995, 2003, 2008, 2010).

p. 35, lines 33-38: the supposition that this will have positive effects on the environment is questionable. If more can be produced per given unit, why won’t the total amount of production continue to increase as prices drop and drive higher demand? Demand can theoretically get quite high – Western Diets – so what are the implications of continued price drops from “efficiency”? See work on the Jeavon’s Paradox in food: Perfecto and Vandermeer 2010; Ceddia et al. 2013

p. 36, last paragraph: pollution – and the separation of livestock and crops – has not been dealt with as a general problem, where sources of fertility for crops must be replaced, and treatment of accumulated animal waste in concentrated form must be dealt with far from crops. The risks are also not being taken into account, in terms of animal welfare, including genetic uniformity→crowded conditions→disease evolution and transmission, both animal to animal and animal to human.

p. 38, Lines 7-12: are these projected lower feed grain prices actually still above the cost of production? Or will they require continued or expanded support and subsidization (adding to the real/True costs of agriculture which this report has consistently ignored)


p. 41, Lines 27-36: again, internalization of externalities is in order
p. 42, Lines 14 – 30: there should be an acknowledgment that food security has consistently been placed BELOW economic concerns—see McKeon 2014 for specific reference to how an FAO approach that placed food security concerns as paramount was explicitly rejected. The analysis here should take into account the fact that in both practice and policy, food security is NOT considered a viable reason to change or reject a deal. Even if one believes that trade generally boosts food security, the idea that even if it HURT food security, protection may not be possible, is ridiculous and unjust – and out of line with history: Chang 2012.

p. 43, concluding comments: As before, there is no role or acknowledgment of how corporate consolidation, oligopolies, commercial campaigns, policy influence, cultural influence, and many other factors have contributed to increasing demand. (See the documentary, Super Size Me, among other examples!) We have not just consumed more meat and demanded more and more purely because it is natural; that is a constructed and maintained position. Commercialization and marketing play a critical role in encouraging consumers to choose certain meat over others. The implicit assumption of the Report that prior and continued commercialization is not a major driver is unacceptable.

Lastly, to reiterate the CSM input endorsed by IATP, this report treats all the typologies on the same hand. It does not discuss at any length the biases that have manifest for some typologies over others, the violence that have led to the disfavoring of some, the uninternalized costs, and other distinguishing features. The FAO report on Natural Capital clearly shows more favorable outcomes for SRI, organic, and rotational grazing over other alternatives—the fact that research regularly shows lower externalities for alternative agriculture/pastoralism/etc. must be discussed and analyzed, and the typologies should be accompanied by this analysis.

Chapter 3: Challenges to Achieving Sustainable Agricultural Development that Helps Meet FSN Objectives

Social, pp. 45 – 47: Outlines challenges to (social aspects) of creating sustainable systems, with an emphasis on the issues of gender, on the difficulty and low remuneration from agriculture, and the problems of more intensive systems. This section seems to be written from a very sympathetic analytical perspective.

On gender, we add some things based on IATP’s recent submission to the FAO African regional meeting on agroecology:

“Agroecology has a strong and growing focus on women’s rights and gender equality (Fitzpatrick 2015), a focus that is being continually strengthened by the concept and commitments of food sovereignty (Chappell 2013) and the related agroecology and food sovereignty movement (Desmarais 2007; La Via Campesina 2015). Issues of gender are, naturally, complex and locally-specific, and may need different approaches even within the same small community. Therefore addressing gender is not well-suited to the use of automatic processes and is likely best served by adaptive, specific, locally-suited, and participatory approaches (Bezner-Kerr 2008). Also, although there are many probable benefits to women, men, children, and agriculture when gender inequality is dealt with in an effective manner (Rawe et al. 2015), careful consideration and deliberation is important so that an emphasis on fulfilling women’s potential does not lose sight of their rights or place additional disproportionate burdens on them to support and improve community development:

“While recognizing the power of women to lift their families and communities out of poverty, women are not simply instruments for hunger reduction. Women must be empowered and recognized as equal partners – valued for their contributions and knowledge – not because they deliver results but because they are equal with men.” (Rawe et al. 2015)

Rawe et al. 2015, and Bezner-Kerr et al. 2013a,b provide specific case examples.
This section on social issues in agriculture should also refer back to our earlier comments on social issues in agriculture.

On farmers’ well-being and livelihoods, recent research on the importance/positive impacts of higher food prices across society should be pointed out, examined, and discussed: Headey 2012; Ivanic and Martin 2014. The latter say “The analysis finds that food price increases unrelated to productivity changes in developing countries raise poverty in the short run in all but a few countries with broadly-distributed agricultural resources. This result is primarily because the poor spend large shares of their incomes on food and many poor farmers are net buyers of food. In the longer run, two other important factors come into play: poor workers are likely to benefit from increases in wage rates for unskilled workers from higher food prices, and poor farmers are likely to benefit from higher agricultural profits as they raise their output. As a result, higher food prices appear to lower global poverty in the long run.” This important, counter-intuitive result challenges decades of assumptions and should be carefully assessed as we think about our food future.

Economic: pp 48-50: As a general comment, this section should cover the role of oligopoly and monopoly in the global livestock trade, its implications for FSN and the types of policies needed to address these problems. As more and more developing and Eastern European countries adopt intensive industrial livestock and dairy production, impacts on large populations of small livestock producers should be examined carefully with lessons from countries who have reached advanced levels of industrial livestock production:

“Between 1950 and 1999, the number of U.S. farms selling hogs declined from 2.1 million to 98,460. In 1950, average sales per farm were around 31 hogs. By 1999, average sales had grown to around 1,100 market hogs per farm. One hundred five farms having over 50,000 pigs each accounted for 40% of the U.S. hog inventory. The largest four operations Smithfield Foods, Inc., ContiGroup (Continental Grain and Premium Standard Farms), Seaboard Corporation, and Prestage Farms accounted for nearly 20% of production, and economists estimate 50% of hogs slaughtered in 1999 were produced or sold under some form of contract” (IATP 2000). By 2011, the largest four operations in the U.S. (Smithfield Foods, Tyson Foods, Swift (JBS) and Excel Corp. (Cargill) controlled 63% of the pork slaughter business (Hendrickson 2014). This has implications for FSN in a global industry that is rapidly consolidating (Sharma 2013a). It also shows the power of major meat corporations in setting the agenda in trade deals (Lilliston 2014).

3.2.1 Efficiency and yield gaps: This section starts out with the assumption that increases in efficiency are needed and that intensive production is more economically and environmentally efficient, but then goes on to lay out additional outputs, such as non-food outputs (manure, power), animal welfare or non-tangible social assets, which are higher in less intensive systems. Smaller systems can also be more resilient.

Lines 25-30: Substitute for “efficiency” the “efficacy of good agriculture practices, such as crop rotations and cover crops to make the nitrogen cycle renewable and reduce dependence on chemical fertilizers” (Blesh & Drinkwater 2013).

Lines 31-36: “Yield gaps should not be used as a global norm, since cultural and dietary differences can result in a reduced demand for livestock derived protein and a preference for plant or seafood derived protein for FSN in certain countries and regions” (Komatsu & Kitanishi 2015).

See also “the relatively high yields in some developed countries is a result of an intensification of chemical fertilizer use and a corresponding lack of regulation of such use, leading to costs of pollution that exceed the yield benefits of intensification” (Orr 2015).

Line 45-51: “GHG efficiency” should be measured on a per capita basis and not on a unit of production basis, above all because this a Food Security and Nutrition calculation.
The focus on high prices and their different impacts on farmers and consumers misses the point on volatility and concentration of supply chains. Low commodity prices do not necessarily translate to lower consumer prices, and as De Schutter (and many others) has pointed out in his reports, the problems is much more incomes in rural economies. Farmers will not invest in new production if they are not sure about the stability of higher prices.

Page 50, lines 57-50: “Therefore, a key question is: to what extent should policies intervene in the organization of food systems and food chains to influence prices so that the value added generated along the food chain remunerates labour, farms and rural areas (HLPE, 2013)? The further question is, how will the response differ if the future is a world of rising agricultural commodity prices?” These are important questions that should be addressed more fully in the report. The draft mentions the problems of volatility but should seriously consider again the importance of reserves to manage markets. The report seems to omit the potential role of the public sector in mitigating volatility. China’s corn and pork reserves serve to dampen volatility at least a bit throughout the region. During the 2011 price spike, China sold corn, which had the effect of reducing the price spike in the region and presumably dampening impacts on consumers and on the feed industry.

The section on risks in an interconnected world, page 50-51, acknowledges the risks, but still blithely asserts that reliance on trade will lead to positive outcomes. The current crisis among dairy farmers illustrates the dangers of the lure of foreign markets. Many farmers increased production in anticipation of vast markets in China, India and Russia, but when those markets closed for different reasons, they were left with excess capacity in the herds that couldn’t easily be reduced. This is not only a problem for US and EU farmers. Mexican dairy farmers are also in crisis (see Dairy producers reject their inclusion in the Trans Pacific Partnership.)

The authors note that, “A particular concern that also needs attention is the risk of changes in the food supply chain leading to a powerful transnational trader gaining monopolistic market power, resulting over time in price rises (Reardon et al., 2010).” This is a fundamental problem that needs much more analysis and discussion. In dairy, beef, pork and poultry, very few companies have the lion share of the global market in their control. This is also true for grain (as the report acknowledges). How such oligopolies impact FSN should be examined in the paper. See also IATP’s China Series Publications.

Environmental: pp 52-55: The draft acknowledges that animal production models that are not high density, i.e. Confined Animal Feeding Operations, produce less waste and pollution, have higher use of by-products and lower use of cereal grains – and likely have better animal welfare practices. There is an acknowledgement that livestock production, particularly those based on feed, are more water intensive than from grazing or mixed systems. There is also an acknowledgement that CAFOs create pollution problems and that climate change will favor grazing systems.

However, the section does not draw a clear enough line on the dramatic differences between the intensive CAFO model of animal production and grazing and pasture-based animal production. The differences are very significant in terms of their impact on the environment and climate; but also in building climate resilience through adaptation. The section on climate change heavily cites a study claiming that the impacts of climate change on food distribution are buffered through international trade – a highly questionable conclusion.

We offer areas of improvement on four points: 1) pasture and grazing based systems emit less greenhouse gas emissions; 2) confined operations are much more water-intensive; 3) pasture-based and diverse agricultural systems are more climate resilient; 4) pasture-based systems have the potential to sequester greenhouse gas emissions; 5) the international trading system serves to weaken climate resilience, rather than serve as a buffer.

1) Pasture and grazing based systems emit less greenhouse gas emissions
When considering greenhouse gas emissions, pasture-based systems emit less because they avoid anaerobic methane emissions created in lagoon-based confinement systems and nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal and feed production. For example, manure
related methane emissions from confined animal operations account for roughly 30 percent of California’s total methane emissions. The increased use of liquid waste lagoon systems in U.S. dairies led to a 115 percent increase in emissions from 1990 to 2012. A U.S. Environmental Protection Agency report concluded that enteric emissions decrease when shifting the feed of dairy cows from silage and grain toward more grass. Corn and soy-fed ruminants raised in confined systems produce more methane than grazing livestock.

2) Confined operations are much more water-intensive

Confined dairy operations are significantly less water intensive than pasture-raised cattle. Feeding confinement dairy cattle grain and corn silage involves more stages in the supply chain than pasture-raised cattle, with each stage consumer large amounts of water: irrigating feed crops, processing feed at mills, direct water consumption of cattle, and managing manure. Researchers in the Netherlands estimated that confined dairy production in the U.S. consumes 30.5 gal/lb of surface and groundwater per ton of milk produced. Dairy cows raised on well-managed pasture, by contrast, require fewer inputs of feed grains, and manure is incorporated into the pasture system, rather than necessitating feed cropland as a nitrogen disposal system.

3) Pasture-based and diverse agricultural systems are more climate resilient

There is growing evidence that pasture-based animal production provides a variety of climate benefits. Recent research from CGIAR points out the adaptation benefits of diverse farming systems (livestock and crops) to small scale farmers: “Livestock-crop mixed can help farmers become more resilient to changes in the climate because intermingling crops with livestock production often leads to a more efficient use of natural resources. Also, livestock can provide a buffer against losses in a particular season.”


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Additionally, agricultural systems that have high levels of soil organic matter, consistent with well managed grazing, have significantly higher water retention rates.\textsuperscript{109}

4) Pasture-based systems have the potential to sequester greenhouse gas emissions

Grassland, when properly managed, sequester carbon dioxide from the atmosphere. Estimates for how much carbon sequestration can take place in grasslands vary widely. This is primarily because farmers and pastoralists use a wide variety of land management practices and operate within a wide variety of ecosystems. A 2010 report from the FAO, estimated that properly managed grasslands could sequester as much as .7 Gt CO\textsubscript{2} from the atmosphere.\textsuperscript{110} Another study reported potential sequestration of up to 88 to 210 Gt CO\textsubscript{2} in grasslands over 25 to 30 year period.\textsuperscript{111} Other UN FAO reports on grassland management assert grasslands could sequester.81-1.51 Gt CO\textsubscript{2}.\textsuperscript{111,113} Another recent study found that converting to pastures managed using intensive grazing principles can capture up to 8 metric tons of carbon per hectare, or 3.6 tons per acre per year in the soil.\textsuperscript{114} Finally, there is some evidence that grasslands may have the potential to sequester methane – a recent study measured uptake at a range between .05 to .12 tons CO\textsubscript{2} equivalent per hectare per year.\textsuperscript{115}

5) The international trading system serves to weaken climate resilience, rather than serve as a buffer.

The climate chapter relies heavily on a study that projects that the effects on regional food consumption from climate change will be less pronounced because needs will be met through the international trading system. But the international trading system did not, in fact, moderate price shocks during the 2006-2008 food price crisis. While countries’ reliance on international markets for food has increased – that reliance has not brought stable prices.\textsuperscript{116} A recent study published in the Proceedings of the National Academy of Sciences looked at 140 countries and concluded that as countries become more reliant on global markets,


they become more vulnerable to food price shocks. "The world’s food system is less resilient because of globalization," the study’s lead author told the media.\textsuperscript{117}

The reality that trade liberalization has had mixed results with regards to food security is a major contributor to the failure to conclude the Doha Round at the World Trade Organization. Many of the models of the Doha Round indicate that some developing countries would not benefit from deeper integration through trade liberalization, while a few countries would capture almost all the expected gains.\textsuperscript{118}

An outgrowth of international trade rules has been the decline of policies that support local food systems – in particular food reserves. The dismantling of national and regional level food reserves has left countries more vulnerable to global shocks – whether they be market or climate-related. The institution of regional food reserves is an important climate adaptation tool that needs greater attention.\textsuperscript{119}

The multi-year International Assessment of Agricultural Knowledge, Science and Technology for Development\textsuperscript{120}, which included 900 experts in 110 countries and international agencies including the World Bank and UN Food and Agriculture Organization, concluded that: “Trade liberation that opened developing country markets to international competition too quickly or too extensively, further undermined the rural sector and rural livelihoods. Many countries have been left with weakened national food production capacity, making them more vulnerable to international food price and supply volatility and reducing food security.”

Health and Animal Welfare, pp. 55-58: Section 3.4.1 is limited to food-borne diseases, but should include food safety in general associated with the different livestock systems. For instance, industrial meat production in the United States relies on pathogen reduction treatments (PRT) through various chemicals as a response to very fast line speeds in meat processing plants. These line speeds not only impact worker health as has been widely documented, but also the system allows for ignoring food safety problems from the farm to slaughter because it is assumed that PRT will take care of most problems.

Section 3.4.2: This section once again glosses over the various livestock systems and their propensity towards animal and human diseases. In fact, the report should actually show data on how often animal and/or animal to human diseases occur as a result of industrial intensive meat production. Only one reference is cited regarding the incidence of disease outbreak in developed versus developing countries (Grace et al 2012), however, the reasons behind these outbreaks is not covered. For instance, the role of animal genetics monopolies in blocking immune resistance in broilers (See presentation of Robert G. Wallace, Institute for Global Studies, University of Minnesota: \url{http://www.iatp.org/files/robert-wallace-6-11-2015.pdf}) and the increasing virulence of H5/H7 viruses as poultry stocks rise in intensive meat production.

Section 3.4.3, lines 50-51: It is inaccurate to say “the evidence from the literature is insufficient to draw firm conclusions on the extent of [ ] contribution” of animal agriculture to antibiotic resistance. The CSM submission has listed a number of peer reviewed studies that show the link between animal agriculture and the “burden of resistant infections.” IATP has also compiled a 147 studies that show this link: “Ever-strengthening science—hundreds of studies to date—ties the spreading epidemic of resistant infections in humans to routine antibiotic use in food animals. This is a select summary of that science, across several critical strands of evidence” (Jia and Wallinga 2012). Antibiotic resistance is a global phenomenon and the

\begin{thebibliography}{99}
\bibitem{Murphy} Murphy, S. (2010). Grain Reserves: A Smart Climate Adaptation Policy. Institute for Agriculture and Trade Policy.
\end{thebibliography}
extent of the problem in one region or “context” impacts other regions. The authors should revise this section based on current evidence.

Section 3.4.4: The animal welfare section once again conflates this issue across all types of livestock production without indicating where these problems are most acute. It is clear from existing literature that animal welfare conditions in intensive industrial farming systems unequivocally result in wide ranging animal welfare problems for massive numbers of animals. Policies and regulations concerning animal welfare lag behind in many developed, let alone, developing countries.

Conclusions and Recommendations

Many of the recommendations seem of a general nature and do not necessarily speak to the content of the report itself, nor articulate any concrete proposals for member states to undertake.

In addition, there are some highly problematic recommendations, for instance:

Cross-cutting, Lines 40-43: it is unclear which institutions the authors are referring to and therefore unclear why the reference to public-private partnerships. PPPs have failed in many instances and therefore it is important to clarify exactly what kind of PPPs are envisioned and for what purpose.

Environmental, Lines 18-19: the reference to policies that promote “carbon sequestration” is vague. In many instances, member states are pushing for carbon offsets through land-based carbon sequestration schemes. These proposals are highly controversial and flawed. However, adaptation policies that help create resilience and at the same time enable carbon sequestration are beneficial. It is important to clarify what exactly is being proposed and through what financial mechanism, if any.

Economic, Lines 40-43: Once again, the undue emphasis on yield gaps is misplaced and this recommendation should be revised based on FSN criteria.

Economic, Line 49: “sustainable yield increasing technologies” is once again much too vague to be helpful and seems more like a nod to the agrochemical and seed industry rather than a practical recommendation for FSN.

Economic, Lines 1-3: this is an excellent recommendation and the body of the paper should expand on the problems related to market imbalances and what can be done to rectify them, including appropriate competition and taxation policies at the national and sub-national level that dismantle oligopoly and monopoly power and set a clear and transparent criteria that prioritize producers as well as consumers. In addition, recommendations to stop price volatility (including grain reserves) should be included.

Health and animal care: “targeted access” is not appropriate in all circumstances across the globe and thus recommendations should refer to access to appropriate interventions that target mal and undernutrition. Also, animal sourced foods are only one of a myriad of options for FSN and thus the recommendations should be more broad-based than singling out animal sourced foods, but rather focus on outcomes that need to be achieved regarding nutrition. The authors should also review the Global action plan on antimicrobial resistance approved by the World Health Assembly in May 2015 and reinforce recommendations from the plan.

References


http://www.nature.com/nature/journal/v515/n7528/abs/nature13959.html#supplementary-information


92. Sue Longley, International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers’ Associations (IUF), Switzerland

**HLPE e-consultation on the V0 Draft of the Report**

This comment to the HLPE is submitted by the IUF*, the global trade union federation representing workers in agriculture, food processing and in the hotel, restaurant and catering industries.

The IUF’s affiliates represent workers throughout the livestock sector - on livestock farms (animal rearing), in poultry, in dairies and in meat slaughtering and processing. Some affiliates represent workers in more informal livestock sectors.

The IUF welcomes the decision of the CFS to ask the HLPE to conduct a study on Sustainable agricultural development for food security and nutrition, including the role of livestock.

The IUF supports the submission to the HLPE made by the Civil Society Mechanism.

The IUF also welcomes the recognition in the V0 draft of the report that “The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self-employed versus wage workers, working conditions, etc.) would be of particular interest to the team”, (Question 8).

The IUF would be happy to meet directly with the HLPE to discuss these issues further but for now we provide some links and reports focussed on working conditions in the meat sector that we believe will assist the HLPE in its deliberations plus a global overview compiled by our affiliate, the United Food and Commercial Workers.

Globally the meat sector alone involves over 3 million workers with many millions more in dairy and pastoral work. Information we have received from our affiliates indicates that the workers often face very poor working conditions. We have noted the following trends in the meat industry:

1. Industry reliance on a casual or precarious workforce, with a predominance of migrant and contract workers. The recent horsemeat scandal highlights the issues around multiple layers of outsourcing and precarious jobs as does the report of extensive Campylobacter contamination in UK poultry. Our affiliates are fighting to combat both discrimination against migrant workers and precarious work and we can provide concrete examples of good practice on these issues;
2. The hazardous nature of jobs in the meat packing industry (see below for more details);
3. Major retailers placing pressure on industry processors and packers to lower costs and the effect this has on wages and conditions;
4. The lower wages and conditions in the poultry industry compared to the red meat industry.

**Case study 1 – Australia**

An Australian Senate enquiry has investigated the abuse of temporary migrants:


It has forced Australia’s largest chicken processor to adopt measures to protect workers employed by employment agencies.

**Case study 2 – Germany**

Following a long campaign on the abuse of human rights by labour hire contractors supplying ‘posted’ workers to meat companies in Germany, the German government was persuaded to introduce a minimum wage in the meat sector. The 6 big companies operating in Germany have now committed to fighting social dumping:
Case study 2 – Germany contd

Germany: six big meat industry companies commit to combatting social dumping - By Marion Leo

Following a series of scandals over the exploitation of Eastern European workers in German abattoirs, the meat industry’s six biggest companies Tönnies, Vion, Heidemark, Danish Crown, Lohmann and Westfleisch signed a declaration in which they declare their voluntary commitment to combatting all kinds of social dumping and to improving social and working conditions for workers in their abattoirs. The declaration was signed on 21 September in the presence of the SPD German Minister for the Economy Sigmar Gabriel and the German Food Beverages and Catering union the NGG. A key point in the declaration is that companies have promised to progressively increase the percentage of workers on permanent contracts. For the Minister of the Economy, the agreement constitutes “enormous progress”.

Sub-contractors from Poland, Romania, Bulgaria and the Ukraine recruit thousands of their own nationals, contract them out to German abattoirs on the basis of a “service contract” (Werkverträge), and house them under often unstable conditions (c.f. article No. 7880). Going forward, these workers’ social and working conditions are set to improve. Under pressure from the German Minister for the Economy, Sigmar Gabriel (SPD), the country’s six big meat companies have undertaken a series of commitments.

Firstly, the companies are committed to significantly raising the number of abattoir staff hired on indefinite employment contracts, although they did not specify any numbers.

Secondly, the ‘big six’ have agreed to modify by July 2016 their own setups so that people who work for them will hold employment contracts registered in Germany and that the contracts also adhere to social insurance. For Sigmar Gabriel in this way workers will have better protection from risk of illness or unemployment and in addition these workers will also be able to contribute to a pension. The ‘big six’ will document progress in an annual report.

Finally and crucially for the unions, the companies have committed to “inform and listen” to the works councils as regards the companies’ recourse to ‘service provider contracts’. Deputy head of the NGG union, Claus-Harald Güster has called this declaration as a ‘step in the right direction’. He had, before the meeting, called upon the companies to hire on indefinite employment contracts all those currently working on fixed term contracts.
Occupational health and safety for livestock workers in meat processing

Our affiliates report serious widespread occupational health and safety issues in the meat processing sector. Many of these are related to line speeds. Workers suffer from crippling repetitive strain injuries. These type of injuries affect in particular women workers in the meat sector.

For many years our affiliates in Brazil have campaigned for better legislative protection for workers in the meat industry. Recently further significant progress was made when our regional organization together with our Brazilian and Argentinian affiliates won commitments from the two governments to work together to to promote cooperation and assistance in government labour policies and on the elimination of human trafficking.

The agreement also provides for union/government coordination in promoting freedom of association and in strengthening collective bargaining and establishes a steering committee to monitor progress in the bilateral work.

Occupational health and safety issues are by no means confined to the global South.

A new study released in 2014 by the National Institute for Occupational Safety and Health (NIOSH) confirms what workers in the poultry industry have been saying for decades - it is among the most dangerous places to work in America.

The report concluded that:

- 42 percent of workers had evidence of carpal tunnel syndrome;
41 percent of workers performed daily tasks above the threshold recommended by industry experts;
57 percent of workers reported at least one musculoskeletal symptom.

We believe that working conditions in the livestock sector should be addressed in the HLPE report and in particular:
- the situation of vulnerable migrant workers, and
- occupational health and safety issues.

The IUF believes that the right to food/food security of vulnerable migrant workers in the meat sector is undermined by their poor working and living conditions and that poor occupational health and safety for all workers in the sector puts at risk their health, well-being and ability to earn income to feed their families.

IUF proposals for possible recommendations to be included in the HLPE report:

Governments should
- Ensure compliance with ILO Conventions covering the agriculture/livestock sector especially core conventions relating to freedom of association and collective bargaining;
- Increase labour inspection in livestock raising, meat processing and packing;
- Develop specific programmes to improve occupational health and safety in the livestock and meat processing sectors;
- Take specific measures to protect vulnerable workers, especially migrant workers;
- Take measure to address retail and meat processing concentration and related unfair trading practices;
- Ensure that decent work is at the heart of livestock and meat processing policies.

Companies should:
- Ensure that in their enterprises and supply chains human rights are protected and promoted and that remedy is available as laid down in the UN Guiding Principles on Business and Human Rights;
- Recognise the right of their workers to form join and be represented for the purposes of collective bargaining by trade unions and negotiate with those unions in good faith;
  - Adopt employment policies which maximise secure and permanent employment and ensure there is no discrimination, including against migrant workers;
  - Adopt safe and healthy workplaces and have in place structures for meaningful workers and trade union input.
We are at your service to provide further information either in a meeting or via a teleconference,

*The International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers’ Associations (IUF) is an international federation of trade unions representing workers employed in agriculture and plantations; the preparation and manufacture of food and beverages; hotels, restaurants and catering services; all stages of tobacco processing. The IUF is composed of 409 affiliated organizations in 126 countries.

93. Alessandro Broglio, Vétérinaires Sans Frontières International, Germany

Dear HLPE Project Team and Steering Committee,

Many congratulations for the very comprehensive report on sustainable agricultural development for food security and nutrition, and many thanks for the disclosing the draft for public consultation.

Please find attached the comments on behalf of Vétérinaires Sans Frontières International (vsf-international.org). I hope these will serve for improving the report and ultimately for steering the policies on agriculture and livestock farming towards a really sustainable future for the people, the animals and the environment.

Best regards,

Comments by Alessandro Broglio, on behalf of Vétérinaires Sans Frontières International

General comments:

- The report is comprehensive and contains lots of inputs, but sometimes redundant in some aspects and definitely too long. Who will read it all? A clear, synthetic, exhaustive executive summary with the really innovative points for a change of direction would be really helpful. I am sure it will be included.

- In general the report is quite "polite" towards the current mainstream, if we really want to change direction in livestock farming, we would need a bit more provocative /scratchy expert advice. If instead the intention is to be inoffensive and simply comply with what currently policy- and global economy- makers expect, then it is fine.

- There are some crystallized concepts inherited from report on "livestock long shadow ", generally sounding like “livestock farming impacts negatively on environment and climate changes, produces GHGs (this is the first issue mentioned under section on environmental sustainability, really so important?), etc.”, often without the needed distinctions on type of livestock farming. Constructive criticisms were timely provided to those issues in the "Livestock long shadow", these should be integrated here.

- Is it possible also to avoid so many acronyms and abbreviations? This makes really difficult to read and may even lead to misunderstandings (e.g. ASF for Animal-Sourced Foods but also for African Swine Fever).
To the questions (in blue) posed by the High Level Panel of Experts on Food Security and Nutrition in order to guide the consultation:

1. *The report is wide-ranging and comprehensive in analysing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?*

   Good balance, well done.

2. *The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?*

   The chapter on conclusions and recommendation is the key one. The conclusions should be clearly and sharply expressed as separate bullet points and organised reflecting the different topics touched in the text. Now they are a bit dispersed in the text. I would even appreciate more articulated and focused recommendations, as they are drafted now they sound quite generic and given for granted.

3. *The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?*

   Instead I would suggest to compare the classification of livestock farming system as in "The role of small scale livestock farming in climate change and food security" published by Veterinaires Sans Frontieres International at [http://vsf-international.org/project/study-sslf-cc-fs/](http://vsf-international.org/project/study-sslf-cc-fs/). This is based on four variables: farm size, use of external inputs, use of land, supply to market. If we talk about sustainable agriculture, it is important to be able to "score" the livestock farming systems according to some overarching variables that represent, in the end, the net energetic balance of each system.

4. *The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?*

   Cross check publications and reports by Vétérinaires Sans Frontières International and its single VSF members ([http://vsf-international.org](http://vsf-international.org))

5. *The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?*
I would appreciate and articulated reflection on how the global livestock industry and agribusiness in general works, highlighting the negative effects in term of impact on human, animal environmental health, on economics, on society, including some scenario analysis about how the future would look like by 2050 by keeping this trend. Even an analysis of pros and cons of local/short production/economy/market chains compared to long/globalised production/economy/market chains would create an added value.

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

The steps represented in Figure 9 are generic, already mentioned in other contexts and are not specifically tailored to specifically address FSN-SADL. It is a consolidated knowledge: decision making and risk management should be based on sound, independent and transparent science and on sound risk assessment process.

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

Several examples of successful examples in sustainable agriculture and farming are available from all the projects implemented by the members of Vétérinaires Sans Frontières International (more than 200 projects in 40 countries).

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

VSF has wide experience in projects where food sovereignty is the leading principle, which entails the social dimension of sustainable agriculture development.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?
11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Before data gaps, I think there are a lot of gaps in the management of the data already produced. Are the already existing data on different food security topics collected from the several different stakeholders involved (governmental and non-governmental bodies), centralised and managed by overarching international institutions? Is an adequate knowledge and data management available about the different sectors of food security? Are these data promptly made available for research and development purposes?

12. Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

- The concept of One Health is never mentioned in the report, which could be an important issue, considering the large debate worldwide on the integration of human, veterinary and environment health. This is a key for sustainability in agriculture. ON this issue please check the One Health approach through an agroecological perspective formulated by Veterinaires Sans Frontières (http://vsf-international.org/project/agroecology-and-one-health/) . This goes far beyond the very limited and commonly accepted vision of One Health as merely collaboration between human and animal health scientists and workers.

- The term widely used in the report “sustainable intensification” is misleading and contradictory in itself. Intensification implies by definition yield increase, produce more with less (or at least with the same), which is contrasting with the term sustainable and with what the environment can tolerate. Of course we need an agroecological approach in agriculture, but we do not need to produce more food, we do need to waste less food, but there is enough for all, what is definitely essential is to reshape the way of living/eating/consuming in "developed countries". This model is structurally the source of insustainability, so if it is maintained and proposed worldwide, there will be no way of sustainably intensifying agriculture so to produce sufficient food for all. It is well said in the conclusion of the report, just give it more weight “A number of experts (notably in Europe) suggest a return to more mixed and fewer large specialized production systems to enhance the diversity of production, landscapes and diets. But projections and scenario analyses show that it would be impossible for global ecosystems to sustain the generalization of Western dietary patterns across the world. At the same time, more diverse diets higher in plant content would enhance human health outcomes. This suggests merit in encouraging some diversification – of diets, production mix and scale – adapted specifically to the local ecosystem and social needs, opportunities and preferences, while acknowledging that large-scale, intensive production will still be necessary to meet food availability requirements. More attention needs to be paid to the role of often-powerful downstream sectors in the agri-food chain in respect of relationships with farm suppliers and consumers. Reducing waste and loss at the consumer end of the food supply chain potentially offers a source of supply towards meeting demands and possibly lower food prices for the vulnerable and poor.”
Not sure about what written in Box 3 about food sovereignty “resolution of differences is most likely only to be possible in specific circumstances within and between countries”. Food sovereignty should be instead a basic guiding principle if the aim is to achieve food security and nutrition including also its social and political dimension. This is even more true if the social dimension of sustainable agriculture development is considered as important. There is no long lasting food security without food sovereignty. The model of producing food by consuming land, water and energy in one place and consuming the food in a different place - an example which denies basically any food sovereignty - is structurally unsustainable, unfair, environment- and livelihoods-degradating. Please check http://vsf-international.org/project/small-scale-livestock-farming-and-food-sovereignty/

No mention in the report about the Transatlantic Trade and Investment Partnership (TTIP) and possible repercussion on food security and food sovereignty issue. Still the report addresses a series of economic implications in agriculture and FSN. This global agreement could have quite huge impact on agriculture and health policies. Is there a reason why this is not mentioned? Please check the report by VSF at http://vsf-international.org/project/ttp-report/

Some livestock sectors are really under represented or absent, such as the role of aquaculture (not only fish farming but also molluscs such as mussel breeding) or the alternative livestock rearing such as mini-livestock farming, insects/snail/larvae farming as food source etc. Currently these are acquiring huge importance in the global agenda as alternative and sustainable source of food of animal origin.

Below some comments to specific statements in the text:

Page 35: “...A key question is whether this intensification in developing countries will result in more specialization and industrialization, such as in developed countries, or in the intensification of smallholder mixed systems”.

No doubt that this will be more in direction of specialization and industrialization of big farms. By this trend smallholder will be driven off.

Page 35: “...As production systems intensify and become more efficient, less feed is needed to produce a given unit of livestock product, with positive effects on the environment.”

Less feed, but which feed?? of which origin? where and how is it produced? how far away from the livestock units consuming it? what about the alternative use of that feed or land where it is produced? and for which kind of animals? and what about the quality of the manure deriving from them? the efficiency of a production system should keep into account ALL total inputs and outputs of the chain, not only the feed conversion rate.
Page 38: “...Producing biofuels creates valuable by-products, such as distillers’ dried grains (DDGs) and oilseed meals that can be used as animal feed and can substitute for grain in animal rations.”

This statement at the end of the biofuel paragraph sounds like an incentive to biofuel cropping. Instead the negative effects of biofuel crops to FSN are largely known, e.g. the alternative use of the land used for biofuels, land grabbing, etc. We are talking here about food security and increase demand of food, so since biofuels as products requiring massive use of land for not-food purpose, they should be automatically considered a no-go issue.

Page 63: “...there is growing interest in sustainable intensification (or similar concepts, such as green growth, integrated, low external input or climate-smart agriculture)”

These concepts are not similar to "intensification", see point above.

Page 63: “In the most general of terms, the choice is often characterized as between “industrial” or “agro-ecological” agricultural systems, with corresponding implications for the sources and intensity of resource use, and the environmental and social impacts. In reality, there is, as has been shown, a range of farm systems and even gradations and variations within those farm systems in different contexts”.

Agroecology should be the overarching principle of sustainable agriculture, it is not one extreme of the landscape.

Agroecology integrates environmental, social, economic and political aspects into a global approach. agrosystems are as dynamic entities made up of living organisms (plants, animals, microorganisms) which interact with the environment. See http://vsf-international.org/project/agroecology-and-one-health/)

Page 65 , line 4 “...For example, industrial, intensive livestock operations tend to be efficient in production, but sometimes at the expense of water pollution and the welfare of animals, and depend on feedstuffs from the crop sector, with knock-on environmental effects”

how is the efficiency measured here?

Page 65, line 35:

Add this to response to social challenges: “Change consumption models of food and energy in developed countries”

Page 65, line 49:
Add bullet point under responses to economic challenges: “Forbid biofuel cropping, and incentives really sustainable form of energy production”

Page 66, line 25
if healthy diet will be based on fruits and vegetables, as we are told by the medicine since decades, then the increased consumption of animal products will be accordingly reduced, right? Thus no need of intensification in agriculture for an increased production of food of animal origin.

Page 66, line 25:
What does it mean “Generalize risk assessment/management and communication”?

Page 82, line 6:
it depends on which livestock system, in many case livestock rearing benefits the environment

94. Florence Macherez, Animal Task Force European Public Private Platform, Belgium

ATF Contribution
High level Panel of Experts - Committee on World Food Security
Consultation on the V0 draft of the Report: “Sustainable agricultural development for food security and nutrition, including the role of livestock”
November, 2015

The central role of livestock could better take into consideration the major role animal productions can play in a sustainable circular biomass based economy, by contributing to a sustainable protein security and regulating the ecological cycles. Research and innovation are needed to develop new pathways for improving the sustainability and competitiveness of the animal production sector, with food and nutrition security, climate change adaptation and mitigation as one of the key challenges.

Animal productions in food and nutrition security

Food security in perspective
To secure nutritious food for the growing population, the livestock related production has been increased from 60 and 250 MT/year of meat and milk respectively in the 1960’s, to 300 and 700 MT/year nowadays, of meat and milk respectively. A further increase in production is to be expected as more middle class people in developing countries can afford to shift to a more animal protein based diet. Livestock production also contributes to a better livelihood in poor countries to provide

www.fao.org/cfs/cfs-hlpe
nutritious food, labour, capital and risk insurance, and specific ecosystem services (biodiversity, grassland ecology, soil carbon stocking). Urbanization provides better logistical perspectives for animal protein supply from intensive, sustainable farms in the metropolitan areas. For all these reasons it is expected that in 2050 about 450 resp. 1050 MT/year of meat and milk is needed in 2050. The trend to consume less meat in developed countries will hardly have any effect on this expected increase.

**Sustainable Protein Security**

While the world population increases by 1.7% per year, the demand for food increases by 2.2%. Still 40% of the world population suffer from hunger or malnutrition, mainly related to protein deficiencies. The share of animal proteins in the diet increases with disposable income.

The biological value of animal proteins for human nutrition (digestibility, amino acid profile) is much higher than that of protein of plant origin. The score of animal protein (expressed as the ratio between the digestible content of the most limiting AA in 1 g of animal protein versus the concentration of this AA in the reference protein corresponding to human need) is 40% higher for milk and bovine meat and 25% higher for pig, poultry meat and eggs. This means that we need to eat at least 25% more protein of plant origin to cover our needs. This explains why the Carbon footprint of vegetarian diets is not lower than that of classical diets because vegetarians need to eat more food (DUALINE, INRA scientific collective expertise 2011). Protein from poultry origin today has unparalleled opportunity costs, whereas removing the soy proteins is very expensive. The "Isolated Soy Protein" has a lower nutritional value than caseins and caseinates from dairy products. We will probably have the same technological difficulties with other sources of plant protein.

**Customized Feed Security**

A sustainable nutrition security requires that we optimize the mobilization of human edible proteins from the produced biomass. In that case we can secure protein supply without growing more biomass that requires sparse land and limited resources. The “kg human edible proteins produced per hectare of land without depletion of soil and water” is a sound and straightforward measure of sustainability from a nutrition security perspective.

The yield gap for protein production is in large parts of the world related to the yield gap in plant biomass production. Think of better management of marginal land, including the wide spread rangelands. But even in highly productive agricultures there is a yield gap, as only 40% of the crop production is directly used for food or feed (e.g. corns, grains, rice, pulses). The nutritional value of the crop residuals as feed resource can be improved by degrading lignin’s using fungi (mushrooms) resulting in a feed with a nutritive value comparable to fresh grass for herbivore ruminants. Another example is the conversion of raw biomass residuals by insects, resulting in a protein rich feed resource for fish and, to a lesser extent, poultry, that by nature is insectivorous. From this perspective nutrition security actually means feed security by alternative feed stocks.

**Animal productions in a sustainable circular biomass based economy**

**Integrated livestock and cropland production**
Integrated cropland/livestock systems are the best to optimize human edible protein production. With the actual practices, the optimum is realized when 25% of the proteins are produced by animals and 75% by plants. When animals are optimally used to convert human indigestible plant biomass, the optimum is realized when >25% of the proteins are produced by animals.

**Biomass utilization while recycling**

Livestock production recycles biomass not directly usable for human food to produce food of high nutritional quality, and is a strong engine for the Nitrogen (N), Phosphorous (P) and Carbon (C) cycles, which in turn contribute to the production of biomass. Livestock contributes to the management of biodiversity as well.

Animals consume almost all by-products of crops and grains that are not suitable for grain markets (e.g., those with a low protein content). Manure should be considered as a resource, representing 10.3 million tons of nitrogen versus 10.5 million tons of synthetic N fertilizers. At world level, they also represent 17 million t P that is more than the amount of P supply on the soil with mineral fertilizers (14 million t / year). The substitution of mineral fertilizers by effluents and manure could be further improved. The current trend towards specialization of farms and indeed geographical specialization in either livestock or crops are barriers to optimal use of the N and P effluent.

Grassland, including permanent grassland, and effluent spreading (especially solid manure and compost), contribute to the management of OM and promote soil carbon storage, which in turn is favorable for the sustainability of plant production.

Livestock systems also contribute to the maintenance of biodiversity through 65 million ha of permanent grassland (FAOstat), 17 million ha of rangeland and 10 million ha of sown grassland (totaling 48% of EU-27 UAA) in 2007. These areas and associated structures (field edge, hedges, ditches, etc.) are a source of specific, genetic and functional biodiversity and provide habitats for wildlife.

**Animal production systems are a part of a generalized sustainable bio-economy**

Apart from its contribution to the regulation of ecological cycles, animal production can contribute to the bio-economy in different ways.

- Valuation of new resources such as by-products or losses from agro industry or bio refineries by converting them into animal products. This may require the development of new technologies to secure these by-products.

- Bio-refinery of animal by-products such as (i) manure by extracting organic compounds of interest, then extracting nutrients (N and P) and finally producing energy through anaerobic digestion; and (ii) animal by-products (wastes from slaughterhouse, hatcheries, dairy industries);

- Valorisation of protein for non-food use, development of antimicrobial properties of bone and eggs etc. There is a role for innovations in developing new techniques.

**Others outputs from animal production systems**
The livestock sector is inextricably linked to the vitality of territories and provides a lot of different ecosystem services. The livestock sector contributes to soil fertility, and to maintain open and diverse landscapes appreciated for tourism activity. It also provides skins for further processing in the clothing and furniture industry. The livestock sector thus generates jobs on farms, in agro-food industries and other industries and trade. Most of these jobs are not located in large cities, but are contributing directly to the vitality of our territories. Indeed, all these services are poorly evaluated and not deeply studied to date.

**Climate Smart Livestock Productions**

Accounting for an estimated 14.5% of global anthropogenic greenhouse gas emissions, livestock sector plays an important role in climate change. Ruminant products are considered to have the highest C-footprints. But for a biomass based circular economy ruminants are essential in optimizing the Human Edible Protein production per unit of land use for agricultural biomass production.

Research and innovation plays an important role for further improving the sustainability and competitiveness of the cattle production sector, with climate change adaptation and mitigation as one of the key challenges. The global perspectives for greenhouse gas mitigation in ruminant production is a more than 40% less C-footprint by:

- Genotyping low methane production for selection
- Improving feed quality and digestibility
- Improving animal health and husbandry conditions
- Manure management: collection, storage and utilisation
- Improving C sequestration soils (“4pro1000”)
- Precision livestock farming

**Meat ‘Myth’ Busters**

Some LCA based studies are used to indicate that diets with lower animal products are more sustainable (see graph in paper attached).

But this is a false picture as:

- It is a simplified linear summing up of Single Products LCA’s
- That do not account for integration in a Global Agro-Ecosystem (dynamics, time)
- And ignores the variation and optimization in Feed for Food Footprints
- And thus, do not envisage optimal land use for Human edible Protein Production

**Livestock Farming with Care**
Livestock Farming requires good care. The concept of “Livestock Farming with Care” is founded on care ethics with an integrated approach based on four principles: One Health (i.e. healthy and safe for animals and humans); Customized Care (i.e. from the individual animal’s perspective and integrity); No Nuisance (i.e. from an environmental and societal perspective) and Credible Performance (i.e. from an economic and public prospect).

**Land and Sea**

Land is a limiting factor for food or biomass production, as 70% of the earth’s surface is covered with water. These aquatic and marine environments constitute a promising additional perspective. Seafood is a major source of essential proteins, omega-3 fatty acids and micronutrients. Currently, only 17% of the supply of animal proteins comes from seafood. While only 7% of the biomass used in the bioeconomy is waterborne. And there is hardly an integration of the marine and terrestrial bioeconomy.

Both fishery and fish farming are not optimally governed to use the marine and fresh water production capacity in a sustainable manner. Improvements in this area on basis of an Ocean Farming approach will lead to a promising source of biomass for proteins in the future, while “fueling” the bio-economy. Ocean Farming along the food chain with fish, shellfish and algae.

**Conclusion**

For a sustainable nutrition security on the basis of an optimal exploitation of protein-stocks in biomass resources, integrated biomass production is needed, including terrestrial and marine livestock.

Support to research and innovation is also needed. It should be fostering integrated approaches, interdisciplinary research and concerted actions between farmers, industry and research providers. ATF has developed a White paper on “Suggested priorities for support under Horizon 2020 to enhance innovation and sustainability in the animal production sector of Europe’s food supply chains” in April 2013. The key areas for research and innovation for contributing to a ‘Better Society’ and ‘Competitive Industries’ under the Horizon2020 strategy, identified in this position paper are:

- **Resource efficiency** – using limited resources in a sustainable manner by robust and efficient animals; more efficient feed chains that incorporate health and welfare; making better use of livestock by-products and alternative feed resources; and the use of precision livestock farming.

- **Responsible livestock farming systems** – minimise environmental impact of animal production while improving animal health and welfare; increase protein and energy autonomy in Europe; improve productive grassland based livestock production; and create climate smart, robust and resilient animal production systems.

- **Healthy livestock and people** – prevention and control of disease by integrated management of animal health; the microbiome; improve product quality; and increase food and feed safety.
• Knowledge exchange towards innovation – cooperation and knowledge exchange with producers towards innovation; implementation of animal welfare management and ‘omics’ tools.

The paper also identifies major opportunities for fundamental investments in ‘Excellent Science’:

• Host-microbiome interactions.
• Long-term effects of environmental effects in early life.
• Predictive understanding of phenotypic expression.
• Immune regulation at mucosae.

To support research and innovation in livestock to contribute to a sustainable, smart and competitive Europe, adequate research infrastructures are essential. Priorities for research infrastructures identified by the ATF are:

• Facilitating pan-European sharing of expensive experimental research facilities.
• Developing high throughput phenotyping infrastructures – physical and virtual.
• Investment in biobanks.

Attachments

• ATF Comments on 4th Foresight, May 2015 - link
• “Sustainable livestock production in Europe : A question of Food security, climate and innovation”, Knowledge For Innovation, Oct. 2015 - link
• ATF White paper, 2013 – link
• SAI publication http://www.saiplatform.org/uploads/Modules/Library/lrg-sai-livestock-mitigation_web2.pdf - link


95. Jean Blaylock, UK Food Group, United Kingdom

Dear HLPE Project Team and Steering Committee

Attached are comments on the zero draft from the UK Food Group, which we hope will be useful. We look forward to continuing to engage as the report progresses.

We also note our support for the comments separately provided by the Civil Society Mechanism, of which we are part.
Regards

Jean Blaylock

Summary

The UK Food Group membership is supportive of the report’s efforts to contribute to global food and nutrition security by focusing on livestock, and welcomes this opportunity to input into this consultation.

We encourage the report to be developed further, with particular recognition of the bio-physical limits of the planet121 and the negative impact of intensifying livestock production in certain areas of the world. This productionist approach fails to adequately locate this policy paper within the mandate of the CFS, and the universal right to food. By reinforcing the need to produce more, the paper incorrectly describes the current scenario of adequate, but poorly distributed, food. The potential for agroecology and a food sovereignty approach is underplayed.

We feel the report shows insufficient leadership on the next steps on exactly how sustainable agricultural development can contribute to the goals of the CFS. Specifically, we find that the report should shift its emphasis from a focus purely on increasing production to instead focusing on the contribution that sustainable agricultural development and livestock can make to the:

- food and nutrition security of those most vulnerable to hunger and malnutrition;
- sustainable livelihoods of small-scale food producers and those most vulnerable to poverty, hunger and malnutrition;
- restoration and protection of the environment
- farm animal welfare.

It is currently unclear how a focus on yield gaps to increase livestock production alone will meet these goals, particularly as the report states that hunger is the result of poverty rather than due to a lack of available food. Focusing purely on producing more livestock products without specifically targeting a reduction in the prevalence of under-nutrition and over-nutrition, could do more harm than good to global food and nutrition security. For example:

- those most vulnerable to poverty, hunger and malnutrition may not be able to afford additional livestock products and may find grain more expensive if crops are diverted to feed livestock instead of directly to feed humans. This may therefore create a higher incidence of hunger rather than lowering it.


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adequately nourished people may be more likely to over-consume and become over-weight if animal source foods become more abundant and over-weight and obese people may be more likely to stay or become more over-weight.

increased consumption of animal source foods does not necessarily improve nutrition. For instance, an increase in red and processed meat consumption is linked with higher frequencies of certain cancers122 and increased processed meat consumption with coronary heart disease and diabetes123. Therefore purely increasing livestock production as a whole without focusing on creating animal source foods that are healthy and nutritious might exacerbate malnutrition.

We acknowledge that the conclusion of the report makes some valid points, such as: the need for de-intensification in some areas; the fact that it is impossible to adopt a western diet globally; that policy or other interventions to shift consumption patterns towards healthy and sustainable levels are needed; and that reductions in waste and losses will be helpful towards achieving a sustainable food production.

We do however feel that there is limited discussion on the contribution of smallholder farmers and their livestock to food security, and a simplistic representation of the contribution of livestock, with little mention of pastoralists or working livestock. There are examples of using low-tech, localised improvements in livestock management to benefit people, livestock and the planet without having to adopt a western industrialised system, the latter of which costs $3.3 trillion annually in environmental damage124.

There are a number of concerns about the report, which are listed below in response to the questions posed.

1) The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food and nutrition security, with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the


livestock sector specifically with respect to their relative contribution to food and nutrition security?

The report mostly strikes the right balance, although there is limited attention paid towards nutritional needs of those that are currently overconsuming animal source foods - 1.9 billion people globally are overweight; saturated fat from animal source foods contributes to this problem. Nutrition should therefore not only be improved for the under-nourished, but the over-nourished too. Food and nutrition security could potentially be realized with fewer environmental costs by redistributing animal source foods from those overconsuming to those under-consuming (rather than increasing food production in a world where agriculture is already contributing to climate change and biodiversity loss). The report does not highlight the global nature of crop production, and livestock feed, and the negative health consequences of soy production on producers in Latin America, and the environmental costs of its production (deforestation of the Amazon basin, and the transport costs of moving animal feed around the world. Increasing supply of animal source foods globally will not deliver food and nutrition security for the people most in need of greater calories and nutrient intake (thought to be up to 1.4 billion people) unless they are able to afford and access the animal source foods, which is unlikely in the current economic system.

We encourage the report and policy recommendations to focus specifically on how sustainable agricultural development including livestock can contribute to the goals of the CFS. The way in which sustainable agricultural development including livestock can improve these goals is currently unclear in the report. Specifically, it is unclear how increased livestock production can enhance the:

- food and nutrition security of those most vulnerable to hunger and malnutrition, given that hunger is driven by poverty not a lack of food production;

- livelihoods of small-scale food producers and those most vulnerable to poverty, hunger and malnutrition

- environment

- farm animal welfare.

The report discusses some impacts of intensification on the environment and animal welfare, but less on the negative effects on people, particularly food producers and agricultural workers. It is vital for balance and to support the CFS goals that the report assesses the possible risks of increasing the production and/or intensification of livestock agriculture that could negatively impact the food and nutrition security of the most vulnerable and food-insecure, their economies, societies and livelihoods.


2) The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

There are several notable omissions.

1) Livestock as providers of power.

Working horses, donkeys and mules alone support the livelihoods of an estimated 600 million people in the developing world, 127 not taking into account other working livestock species such as camels, oxen and llamas. Their draught power is the very reason working animals, such as equids, are kept and very much their intended function, as opposed to being a by-product of livestock rearing. Their contributions to individual livelihoods and national economies are significant, yet insufficiently assessed and quantified, as acknowledged by the series of IGAD reports published between 2010 and 2013 on the contributions of livestock to the economies of IGAD member states, 128 and more recently in the Brooke’s *Invisible Workers* 129 report.


128 Including:


2) Biodiversity.

There is an omission in Section 3 on threats to biodiversity caused by livestock production. Namibia is a good example showing that 80% of wild mammal populations are found on extensive livestock farms\(^{130}\). Land sharing between agriculture and pasture-fed livestock has therefore benefitted biodiversity in this situation. Also the report makes no mention of the dangers of the concentration of ownership of farmed livestock genetic resources into the control of a few global companies.

3) Gender equity

On page 47, the report highlights gender inequality in decision-making around livestock keeping, a general statement for which some evidence does indeed exist. However, in the case of working animals, research carried out with women in India, Pakistan, Kenya and Ethiopia showed that women do in fact play a significant role in keeping and using large livestock such as donkeys, horses and mules and crucially, that they do on the whole have significant decision-making power on their purchase, use and husbandry methods (Valette 2014).

While the report raises pertinent questions around livestock as a pathway out of poverty as opposed to an expression of it, our research shows that women in developing countries prioritise the ownership and use of working animals as a strategy for income generation, relief from domestic burdens and increased status and recognition within their communities. The report should therefore reflect the priorities of poor livestock keepers, both men and women, and enable them to make the most of their animal resources which are a crucial part of their livelihoods strategies.

4) Animal welfare

In response to the statement on page 58 of the report that consensus on global animal welfare standards is difficult to develop, we would like to commend the OIE (World Organisation for Animal Health) on its important work and clear success in developing precisely such global standards (OIE Terrestrial Code, 2015), which are of crucial significance for the food security and nutrition architecture. OIE global welfare standards cover species such as beef and dairy cattle and broiler chickens. We are especially grateful for the OIE’s current efforts to develop Standards for the Welfare of Working Equids, which we hope to


see adopted at the OIE General Session in May 2016. We hope that the OIE’s recognition of the role and welfare needs of working animals will encourage the HLPE project team to adopt a broader, more inclusive view of livestock functions, including traction and transport and of the role of animal welfare in sustaining livelihoods and achieving food security and nutrition.

5) Soil improvement

There is also a limited focus on soil throughout the report. Soil health is vital for livestock and crop production and must be of high quality if production is to increase. However, 33% of the world’s land is either highly or moderately degraded, limiting the capacity for production to increase. Much of this degraded land is in Africa and Asia, where the majority of food insecure people live. This questions the capacity for these areas to be able to increase livestock production.

6) Antimicrobial resistance

Though there is mention of the growing use of antimicrobials in agriculture, the link between intensive livestock production systems is not made clearly. Livestock can only be kept intensively if antimicrobials are used in a preventative capacity, an ideal breeding ground for resistance to develop.

3) The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

No, this is insufficient. We propose the inclusion of an analysis of livestock functions such as that of Dorward et al132 which will allow for a fuller understanding of the role of livestock in supporting food security and nutrition. These functions include income generation, buffering, saving, insurance and social benefits.

We also believe that the current reference to draught power is limitative and does not reflect the value and use of this by hundreds of millions of people as part of their income generating activities. For example, on page 18, the report refers to [draught] power as a by-product of livestock keeping.

4) The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer


different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

Increasing consumption of healthy and nutritious animal source foods for those most vulnerable to hunger and malnutrition would help to improve global food and nutrition security. However, we must be sure not to inadvertently (or otherwise) head towards more westernised diets that are overly rich in animal source foods that contribute to high levels of non-communicable diseases. This process is already occurring in China and India.\textsuperscript{133} Diets with more meat have higher environmental impacts.\textsuperscript{134} There is the potential for the future of diets in developing nations to follow the pattern shown in developed nations, which in effect substitutes one dietary problem (undernutrition) with another (obesity, diabetes and malnutrition).

Much of sub-Saharan Africa will be among the worst hit in terms of climate change, which questions the ability for these countries to produce water-intensive foods, such as livestock, particularly if it is intensively produced. Those most vulnerable to hunger tend to also be water insecure.\textsuperscript{135} Increasing the amount of livestock production in these areas will likely add to water insecurity as livestock have a far higher water footprint than crop production.\textsuperscript{136}

Rather than exclusively promoting the increase in livestock production in these regions, a more robust approach might be to recommend the increased production of climate-resilient food systems such as agroforestry\textsuperscript{137} alongside promoting innovative methods of producing high-quality nutritious foods using plants rather than animals.\textsuperscript{138}


\textsuperscript{135} FAO (n.d.) Water at a Glance: The relationship between water, agriculture, food security and poverty \url{www.fao.org/docrep/016/ap505e/ap505e.pdf}


\textsuperscript{138} Hubert, B., Rosegrant, M., Van Boekel, M. A., & Ortiz, R. (2010). The future of food: scenarios for 2050

\url{www.fao.org/cfs/cfs-hlpe}
5) The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to food and nutrition security. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

There could have been more emphasis on the benefits of using crops to directly feed humans rather than via livestock (the latter of which requires more energy to produce and creates less than half the calories that would have been available had we eaten crops directly139). This inefficiency of feeding crops to livestock is vastly unsustainable and should be mentioned as such. A Chatham House paper concludes that the feeding of cereals to animals is “staggeringly inefficient” and “indirectly places rich meat and dairy consumers in competition for calories with poor crop consumers”140. The International Institute for Environment and Development stresses that using cropland to produce corn, soybeans and other crops for animal feed rather than to grow food for direct human consumption is “a colossally inefficient” use of resources141.

There is a strong bias in the report towards intensifying livestock production; this does not reflect the social, environmental and economic costs of these industrial systems. Examples of this bias include:

- On page 48, lines 41-44, the report discusses the lower carbon footprint of intensive systems but fails to mention that intensive systems also have much larger ammonia emissions than extensive systems142.
- On p49, lines 13-14, the report neglects to show that intensive livestock production dramatically reduces the number of farm workers needed due to mechanisation and reliance on technology143.


• P49 lines 24-25: the carbon footprint of animal source foods per calorie is in general substantially higher than plant-based foods.

• P54, lines 19-21: this fails to point out that the majority of livestock globally are raised intensively and therefore do make significantly large contributions to pollution.

• P54, line 48: other gases emitted from industrial livestock production include fine particulate matter created from the volatilisation of ammonia, which contributes to respiratory and circulatory diseases.

• P57, lines 30-33: animal diseases from livestock also negative impact wildlife and potentially cause species extinctions of wild animals. This may in turn influence proper ecosystem functioning.

• P57 section 3.4.3: antimicrobial resistance is far more of a problem in intensive systems than extensive.

• P63, lines 26-27: Intensification is however at the expense of increased ammonia emissions, possible reduced animal welfare and reduced nutritional quality of meats.

• P65, lines 40-41: we should not necessarily increase nitrogen content of all feed for livestock, as CAFOs tend feed crops high in nitrogen already, causing a significant amount of nitrogen pollution.


Given that the report follows projections out to 2050, and the development of new foods continues at great pace, the report neglects to mention the potential for the production high quality foods via novel meat-substitutes, such as mycoprotein. These novel products are beneficial for health, nutrition and environmental outcomes. It could be worth including this topic in the report.

6) A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

Yes, although there are benefits from using other participatory decision-making tools such as the Delphi technique or multi-criteria decision analysis.

7) Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and food and nutrition security?

1) What not to do: broiler chicken intensification case study in the United States

This case study shows that intensification of chicken production has caused increased localised pollution and has threatened livelihoods. For example, 71% of US broiler farmers now live below the poverty line and are often crippled with debt due to having to pay out large sums of money for investing in housing and equipment necessary for intensive farms. This intensification has caused broiler meat to become fattier and unhealthier. This is not only bad for our nutrition (as it can increase the likelihood of obesity and malnutrition) but also raises concerns of zoonoses and antibiotic resistance due to the highly concentrated...
large flocks present in industrial-scale chicken farms. Lastly, animal welfare has been highly compromised. This is a clear example that intensification to increase production does not result in higher nutritional quality of meat and has negative knock-on effects on social and economic sustainability.

2) Win-win China case study: dual purpose chickens

On a farm close to Beijing, a slower-growing, dual-purpose traditional breed of chicken is used to rear male chickens for meat and females are raised primarily for eggs and then used for meat at the end of their laying lives. The products receive premium prices at market due to their high quality. The farm is free range, offering higher welfare to the animals, which enjoy good veterinary health outcomes: mortality is low and antibiotic use is sparing (which reduces the chance of antibiotic resistance in humans). It is also likely to be environmentally resilient as the feeds are largely grown locally and the manure and crop residues are digested to produce energy. Water pollution is also low.

This model of farming could be applied elsewhere, bringing many benefits. In the UK, research shows that chicken and eggs from free-range and slow-growing breeds are of higher nutritional value than from intensive farming of fast-growing breeds which have clear positive implications for individuals needing to increase the nutritional value of their foods. The successes of this farming model can be used to secure good food and farming elsewhere. It can be used to resist industrial-scale intensive farming with fast growing breeds that result in: wasteful practices; high grain use and associated vulnerability to feed price-shocks, heat and water stress; higher pollution and poorer outcomes for animals, health and livelihoods. Combining chicken farming with agro-forestry is an additional step that could bring multiple benefits to social, economic and environmental security.

3) Water-efficient livestock production to improve social, economic and environmental sustainability

In semi-arid areas of Africa such as Ethiopia, access to simple technology for storing water can dramatically improve the lives of people and farm animals. This study found that year-round access to water increased farm yields up to ten-fold, improved food security, nutrition and farm animal welfare and reduced poverty in small-scale farming. This was achieved by

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using water harvesters that store excess rainfall runoff collected during the rainy season. The water harvester led to irrigated crops during the dry period, which improved yields and allowed for multiple harvests. Incomes increased tenfold by using this simple technology and helped to safeguard the farmer’s livelihood.

4) Carbon Sequestration through livestock placement in Uganda

A study into the net effects of a one cow per family programme highlighted the positive contribution of the cow to the Carbon sequestration of an agro-ecological farming system in Uganda.

www.sendacow.org.uk/assets/files/Related-downloads/Foundation_Series_Climate_Proof.pdf

5) Productivity Increases through skills transfer in Ethiopia

This report highlights the tremendous potential of smallholders in Ethiopia, who showed a 400% increase in income through the adoption of a raft of agro-ecological techniques increasing productivity of each component of their farming system and through additional diversification within that system.

www.sendacow.org/ethiopia-impact

8) The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

The contribution of small scale food producers to the social and environmental dimensions of development are largely ignored in this report. As mentioned above, livestock contribute to the physical capital of women as a “walking bank”.

There is an omission when recommending that developing nations must intensify livestock production: the report does not discuss the livelihood implications of intensification i.e. that this usually brings a reduction in labour force, as has been seen in the West163. If alternative jobs for workers exist, this may not pose a threat, but if not, rising unemployment could become a serious problem. In developing nations, agricultural workers tend to come from poorly educated backgrounds and may not have any other option for employment. Intensification of livestock production therefore not only threatens food and nutrition security but the livelihoods of the most vulnerable. Also, intensification of any type in agriculture requires capital input, which adds financial burdens, and possibly debt, on farmers. Ways to achieve sustainable agricultural development that protect and support small-scale food production are needed. Limited attention has been paid in the report to how agroecology can achieve sustainable agricultural development. Lastly, changing

farming practices requires some level of risk, which should be underpinned with social-security mechanisms.

9) The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and food and nutrition security?

10) What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Half of the EU budget goes towards funding agriculture. This money could be better directed towards promoting sustainable and agro-ecological approaches (part of Pillar 2 of the Common Agricultural Policy), instead of predominantly rewarding high production (Pillar 1), the latter of which is sometimes at the expense of the health of people, livestock and the environment. To tackle overconsumption of animal source foods in much of the developed world, policies could include meat taxes164 or subsidies on plant-based foods165.

11) The design and implementation of policies for food and nutrition security requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

One potential gap that requires filling is valuing the positive and negative externalities of livestock production. Currently, the price of meat does not adequately reflect the externalities that are created due to its production and consumption166. We need data on the health, environmental, social, economic and animal welfare costs and benefits (e.g. using true cost accounting) of the four livestock categories used in the HLPE report. One recent report suggests that the annual environmental impact of industrial farming is $3.3 trillion8. Reports such as this will help to highlight the market failures of various livestock production systems and could expose areas where policies can be used to incentivise sustainable livestock production that benefits people, livestock and the planet.


12) Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

The emphasis on intensification of livestock production is overrepresented and does not offer other alternatives to the reader. The report assumes that the only way to tackle food and nutrition security is to increase livestock production but ignores the fact that increased food availability does not result in increased food accessibility, particularly for people living in poverty.

Increasing grain-based meat production is projected to negatively impact those most vulnerable to hunger, particularly in Sub-Saharan Africa and southern Asia, through competition for human-edible grains. Feeding human-edible crops to livestock is wasteful: from 100 calories of cereal fed to livestock, we only obtain 17-30 calories from meat. This inefficiency detracts from the global food base, and affects the most poor and hungry disproportionately, which exacerbates food insecurity for the already under-nourished. This increased production will intensify associated health risks from non-communicable diseases and environmental problems. Improving food and nutrition security for the undernourished requires much more than just producing more food. Enough food is already produced to feed 10 billion people but is currently lost due to wastage (including the waste of calories from feeding crops to livestock and from biofuel production) and overconsumption.

The report lacks evidence on how to sustainably deliver food and nutrition security to the people most in need of food and nutrition security.

It would be worth noting in the report that fish and invertebrate agriculture are not included in the remit of this report. It would also be worth including the farming of rabbits and ducks in some sections of the report as these species make up a large proportion of farmed animals in some areas of the world.

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96. Jonathas de Alencar Moreira, Ministry of Agriculture, Livestock and Food Supply, Brazil

Dear Members of the High Level Panel of Experts,

We appreciate the opportunity to contribute to this excellent work.

Our comments are in attachment: Comments - MAP - FAO Report.

Best regards,

Jonathas de Alencar Moreira
Agronomist, M. Sc.
Federal Agricultural Inspector
Ministry of Agriculture, Livestock and Food Supply of Brazil

In response to the questions listed in the query letter, regarding the document prepared by the High Level Panel of Experts on Food Security and Nutrition, this paper brings additional information and clarifies some issues, especially those affections to Brazil.

Note that the numbering of the topics below followed the same sequence number of the issues raised in the cover letter. Only issues that had answer is that were mentioned below.

To sum up, we thank you for the opportunity to contribute to this work, that has excellent quality.

Question 1
It is possible to understand clearly that the information in the report shows the close relationship between global agricultural development and livestock, being these topics essential for ensuring food and nutrition security, especially concerning the increased in worldwide animal protein consumption.

Question 2
The report is very comprehensive, but a summary with an overview of the work could be inserted in the main document. This summary could have principle points and conclusions. Such section would bring an initial view of the document as a whole. Consequently, it may raise the reader's interest for read the material.

Question 3

www.fao.org/cfs/cfs-hlpe
The four categories of animal production systems represent the main models adopted. However, it is also important to consider situations where production systems are combined. In Brazil, the number of farmers, who use extensive cattle production at first, until adult age, with intensive cattle production after (feedlots), only to fatten, is increasing.

Another model that is becoming more popular is the Integration Crop-Livestock- Forest, where the farmer produces grains, meat and wood in a single area. In the face of soil and climatic characteristics of the country, which allow cultivation during the entire year, Brazil has raised its efficiency in land use, developing more sophisticated systems, which reflects in the reduction of need to open up new areas for agriculture.

Question 5
Yes. Technological innovations are revolutionizing sectors such as social communications, trade, business and agricultural production, which are quite connected.

With social networking, new consumption patterns are scattered faster than normally observed in previous circumstances. This may change the trade in specifically products more intensely.

The agricultural technology has also changed over time. In Brazil, for example, while there was an increase of 57% in grain-producing areas in the last 40 years, production increased by 351% over the same period, improving the food supply for the world population and exerting less pressure on natural biomes.

Question 6
This approach is useful in order to set guidelines. But the full detail of how these actions can be performed, including successful examples, is needed. In fact, one of the great difficulties of a policy implementing is to decide how the best way to do it by getting effective results.

Question 7
In Brazil, an example of work that has been successful done is the Sector Plan for Mitigation and Adaptation to Climate Change for the Consolidation of a Low Carbon Economy – ABC Plan. This Plan aims to reduce greenhouse gas emission in Brazilian agriculture from the dissemination/adoption of the following techniques: Recovery of Degraded Pastures; Integration Crop-Livestock-Forest and Agroforestry Systems; No-tillage System; Biological Nitrogen Fixation; Planted Forests and Treatment of Animal Waste.

For this, various actions have been development in order to get: technical assistance strengthening, training and information of people involved, development of strategies to technology transfer, field days, seminars, workshops, implementation of Technology Reference Units, among other actions. Furthermore, the Federal Government of Brazil created a credit

www.fao.org/cfs/cfs-hlpe
line named "ABC Program" that finances the techniques which are recommended in the Plan, giving an agriculture loan with more affordable interest to producers in order to encourage the adoption of technologies to sustainability.

Since 2011, this Plan has trained 29,640 people, being 70% technical workers and 30% farmers.

In terms of area, between 2010 and 2014, 5.00 million hectares of pastures were recovered; 1.04 million hectares of crops with Integration Crop-Livestock-Forest were adopted; 5.10 million hectares of No-tillage System were done; and 1.44 million hectares of planted forests were cultivated. In total, the Plan covered 12.58 million hectares.

Question 9

In Brazil, there are some sectors that aims to curb farmers to perform deforestation. On The Soy Moratorium, for example, two bodies representing the sector, the Brazilian Association of Vegetable Oil and Brazilian Association of Grain Exporters, have pledged to not buy or finance the soy produced in areas that have been deforested in the Amazon biome since June of 2006.

Similar work has also been proposed by the great Brazilian slaughterhouses that signed the Moratorium of the Flesh in 2009. They agreed to not buy fatter cattle from farms located in deforested areas of Amazon.

Question 10

In Brazil, the ABC Plan is one of the most successful initiatives and which stands out in encouraging sustainable agricultural production, providing the reduction of greenhouse gases emission. Further details of the plan can be seen in the response of Question 07.

In addition to mentioned in Question 07, the resources allocated to this plan are mainly from the federal government, but also participating State Governments, Private Entities Class Representative, Financial Institutions and International Funds.

Question 11

Certainly, a major constraint is data availability in accessible databases. Often, the data exist but are sprayed in various government and private sources. Moreover, in the most of situations, these data are not available for public access.

Question 12

In Box 13, page 74, the words "Over the past 20 years, about 10 percent of the Brazilian Amazon forest has been lost, and more than half of this loss was due to the conversion of the forest to
cattle pasture (Faminow and Vosti 1998)” it is not suitable, since this source does not reflect the current reality, as it was produced 17 years ago.

Contrary to what was reported in the text (page 09, line 15), Brazil is reducing its pasture area and increasing livestock production, demonstrating greater productive efficiency (high productivity). This decrease of pasture is occurring due to the advancement of agricultural crops on these areas.

On page 33, line 32, it is important to highlight the technologies of crop-livestock-forest integration adopted in Brazil, and these used mainly by larger producers.

It is important to make an adjustment in the text of your work (page 75, box 13), as the document only mentions the ABC Program credit line, but this is just one of the actions undertaken within the ABC Plan, which is much broader (see Question 7).

We are available to more information.


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Federal Agricultural Inspector

97. Kari Hamerschlag, Friends of the Earth, United States of America
HLPE consultation on the V0 draft of the Report: Sustainable agricultural development for food security and nutrition, including the role of livestock

We commend the CFS HLPE in tackling the issue of livestock, food security and sustainable agriculture development. We believe, however, the draft report falsely assumes that increased industrial livestock operations are a necessary component of feeding the world. The reality is that we already produce enough food for close to 10 billion people on the planet today. While we will need to increase food in some regions, efforts to enhance food security should focus primarily on supporting small-scale farmers and agroecological farming systems and shifting diets in developed countries towards more plants and less meat through nutrition and procurement policies, a trend that we are already seeing today in many Western countries. While meat consumption will inevitably grow in many developing nations, we must pursue effective strategies and policies to ensure that meat consumption levels per capita in developing countries remain far below the typical western diet, and that there is wider availability of meat raised under healthier and more sustainable conditions. Finally, a stronger focus on waste reduction would also reduce the need to expand meat and grain production for factory-farmed animals.

171 http://www.researchgate.net/publication/241746569_We_Already_Grow_Enough_Food_for_10_Billions_People_and_Still_Can’t_End_Hunger

www.fao.org/cfs/cfs-hlpe
Specifically, our recommendations emphasize the following points:

1. Food security and nutrition (FSN) can best be achieved by supporting small and mid-sized farmers and agroecological farming systems, rather than intensive production practices, which require significant chemical and water intensive inputs and generate significant air and water pollution.

2. Reduced meat consumption offers large GHG mitigation and health advantages.

3. Developed nations’ consumers are already demanding meat alternatives.

4. There must be greater emphasis on harmful health impacts associated with industrialized animal production systems, especially irresponsible antibiotic use, growth hormones, and cancer and dioxin risks.

5. Report should highlight health benefits of pastured/grass-fed meat and organic/agroecologically produced food.

1. SMALL-SCALE AGROECOLOGICAL FARMING SYSTEMS ARE THE SOLUTION

Far from feeding the world, today’s industrial food system — backed by agribusiness-friendly trade and agriculture policies — accelerates global poverty and hunger through its exploitation of workers and displacement of farmers. Our dominant food system prioritizes mass-scale livestock and monoculture crop production, processed foods, biofuels and exports — all of which undermine small producers, public health and the growth of local, diversified and resilient farming communities. Ironically, millions of small farmers face some of the highest rates of poverty and hunger.173

As the world grapples with how to feed 9 billion people by 2050, overwhelming evidence shows that large-scale industrial food and farming practices are a major part of the problem, not the solution. Our industrial food system — based on monocultures and factory farms, genetically engineered seeds, and chemical pesticides and fertilizers — is rapidly depleting and degrading our soil, land and water.174 This food system is compromising resources that are essential for our future food security, while contributing to a major obesity epidemic and health care crisis that is costing the world hundreds of billions of dollars a year.

Agroecology provides a powerful solution — highly productive food systems that can amply feed the world while reducing fossil fuel use, saving water, restoring soils and building vitally needed carbon. A growing body of research, including a recent 2014 UC Berkeley meta-analysis, shows that diversified organic agriculture and agroecology systems are highly productive and can deliver yields just below or in some cases on par with industrial agriculture.175

175 http://rspb.royalsocietypublishing.org/content/282/1799/20141396
the USDA shows that agroecological grain production, using fewer synthetic chemicals, can match or exceed U.S. industrial grain yields — particularly over the long term — while providing equal or higher profits to farmers.176

When produced on a smaller, more sustainable scale, animal agriculture can reduce emissions. Pastured and grass-fed livestock require less feed and enable manure to become a fertilizer, rather than a pollutant. As the USDA notes, pastured operations return manure directly to the soil rather than storing it in huge vats, producing fewer methane emissions. Permanent, properly managed grazing grasslands used as pastures, rangelands and hayfields can store great amounts of much-needed carbon, building climate resiliency and reducing GHG emissions.

Comments

“In terms of food availability at the global level, agriculture, including livestock, has recorded impressive progress in production over time, due to a combination of economic development, advances in technology, knowledge and improved management along the supply chain. This increased production has mostly occurred through specialization, intensification, industrialization and economies of scale that depend increasingly on inputs often grown outside the farm, including animal feed from the crop sector and non-renewable sources of energy.” (pg 9)

See comments above.

“The needed increase in agricultural production (including livestock) offers a huge opportunity to lift smallholders out of poverty.” (pg 13)

Lifting smallholders out of poverty requires systemic changes, including support for the millions of small-scale farmers worldwide who produce 70 percent of our food on 25 percent of farmland.177 Rather than increasing agricultural production, poverty reduction can be alleviated through technical assistance for small-scale farmers, protection against land grabs, and building climate resiliency through diversified, agroecological farming. Research published in the Journal of Peasant Studies shows that diversified Cuban farms exhibited crop losses fifty percent lower than neighboring monoculture farms during negative climate conditions, while showing a faster productive recovery. 178

176 http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0047149#pone-0047149-g003

https://www.grain.org/article/entries/4929-hungry-for-land-small-farmers-feed-the-world-with-less-than-a-quarter-of-all-farmland

178 http://www.tandfonline.com/doi/full/10.1080/03066150.2010.538584#abstract
“Second, by facilitating the correction of nutrient deficiencies and addressing undernutrition. For this increase in access to animal-sourced foods, livestock numbers need to increase, but so too will the productivity of these animals, the latter being particularly important if natural resources (particularly water) are to be used wisely, and environmental pressures and greenhouse gas emissions are to be mitigated.” (pg 26)

While animal food products in small quantities may be necessary in developing nations for FSN, these needs can be satisfied through integrated livestock-crop farming systems. This section fails to account for the negative externalities of the large-scale industrial livestock sector (i.e. water pollution, grain dependence, corporate consolidation) as well as its tendency to lead to overproduction of livestock. A new UN Food and Agriculture Report, puts the cost of the environmental damage from agro-industrial production at $3.36 trillion annually, including $1.1 trillion in costs from livestock production. The same report finds that organic and agroecological alternatives, such as holistic grazing, greatly diminish these costs and can provide a path forward that more effectively sustains both humans and the planet.

“The WDR makes the case for liberalization of agricultural markets – domestically and globally – as an important means of revitalizing the sector in support of development and FSN. It notes, for example, that access to world priced imports of food staples can be pro-poor, including for smallholder agricultural producers who are net buyers of food. Similarly, removal of export restrictions on food, often intended to dampen prices in local markets, can hamper access of poor farmers to valuable export market opportunities and noting two-thirds of agricultural value added is in developing countries.” (pg 14)

Liberalizing trade regimes such as the WTO, NAFTA, and CAFTA only prioritize industrial production of export commodities while eroding public investments in small-scale diversified farming for local and regional consumption. These regimes promote input-intensive agriculture, pushing millions of farmers deep into debt, causing mass farm closures, poverty and migration.

“The world is only able to support its present population because of the “green revolution”, which was driven by innovations in plant breeding, including mutation breeding, fertilizer and pest control.” (pg 48)

Others have noted that the “green revolution” actually led to environmental damage, reductions in biodiversity, loss of traditional knowledge, deep debt for poor smallholders and increased farm productivity, higher vulnerability, and reduced sustainability


City of Michigan note. Hit by climate volatility, industrial farming systems “may experience lower productivity, higher vulnerability”

Research in the American Journal of Alternative Agriculture found that organic soils hold in more water than conventional plots, allowing for yields that are less affected by drought periods. D.W. Letter, R
consolidation for the wealthier farmers. Furthermore, this analysis of the green revolution fails to account for an alternative scenario, in which more research and development could have been invested in agroecological solutions. Any modest yield gaps that do exist from industrial agriculture result primarily from a huge gap in public-funded research. In the US, less than 2% of agricultural research spending focuses on improving and expanding organic farming.

“At the same time, opponents are concerned about currently unknown harmful effects, the escape of genetically modified organisms into the environment and the transfer of allergens into new foods (Buiatti et al., 2013).” (pg 48)

Agribusiness has pushed biotech crops in developing nations as a solution for hunger and drought – but it has failed in many cases, a Cornell University study found. Analysis by the Australian government found that “crops genetically engineered for drought tolerance have not been found to outperform traditional varieties.” Most GMO crops, including corn, soy and cotton, are grown primarily for animal feed, biofuels, fiber or ingredients for processed foods — and thus fail to address the root causes of hunger or deliver healthful benefits to consumers.

“In a world of increasing competition for the scarce natural resources on which agricultural production depends, meeting future demands for FSN requires improving the efficiency of current use of inputs rather than expanding land and water inputs.” (pg 48)

See comments above.

“For example, industrial, intensive livestock operations tend to be efficient in production, but sometimes at the expense of water pollution and the welfare of animals, and depend on feedstuffs from the crop sector, with knock-on environmental effects. Extensive livestock operations tend to depend on pasture and conserve land at risk from erosion vulnerability, but sometimes at the expense of productive efficiency.” (pg 65)

As noted in our comments above, production efficiency is only one of many factors to be considered when looking at FSN. For example, pasture-raised livestock not only conserve land, but also offers increased carbon sequestration benefits, not to mention improved farmer livelihoods and decreased water pollution. To quote a Nature published paper, “When appropriately stocked and

182 http://monthlyreview.org/2009/07/01/agroecology-small-farms-and-food-sovereignty/#fn1
185 http://bioscience.oxfordjournals.org/content/61/3/183.full.pdf+html

www.fao.org/cfs/cfs-hlpe
managed, grassland–ruminant ecosystems are an efficient, sustainable method of producing high-quality protein with minimal environmental impacts.”187

2. REDUCED MEAT CONSUMPTION OFFERS LARGE GHG MITIGATION ADVANTAGES

The Potsdam Institute for Climate Impact Research and the UN Intergovernmental Panel on Climate Change (IPCC)’s recent 2014 report on agriculture and climate change mitigation notes that reducing meat consumption would decrease non-CO2 greenhouse gas emissions more than technological mitigation options; combining both approaches would deliver even greater GHG reductions.188

According to Dr. Rajendra Pachauri, the past IPCC chair, “In terms of immediacy of action and the feasibility of bringing about reductions in a short period of time, it clearly is the most attractive opportunity. Give up meat for one day [a week] initially, and decrease it from there.”189

Comments

“The economic yield gap is accompanied by a similar environmental efficiency gap: numerous studies have shown that ASF from animals reared in more intensive and specialized systems have a relatively lower carbon footprint than those from extensive systems” (pg 48)

While many studies do find that intensive livestock systems have lower GHGs for enteric fermentation, feed production, and manure management, those same studies do not consider the carbon sequestration benefits of pasture based systems. Several studies have found that when those sequestration benefits are accounted for, pasture based systems can in fact lower overall GHG emissions.190191192193 In any case, rather than focusing on a singular issue, such as GHGs, it is important to consider the overall environmental harm of intensive systems, and the potential environmental and economic benefits of agroecological alternatives. Meat and dairy raised in sustainable, organic, humane and well-managed pasture-based systems can reduce greenhouse gas emissions, increase climate resiliency, protect natural resources and enhance soil and water

187 http://www.nature.com/nature/journal/v418/n6898/full/nature01014.html
188 Intergovernmental Panel on Climate Change. (2014). Ch. 11: Agriculture, Forestry and Other Land Use (AFOLU).
189 http://www.theguardian.com/environment/2008/sep/07/food.foodanddrink
191 https://kb.wisc.edu/dairynutrient/375fsc/page.php?id=48431
192 http://www.nationaltrust.org.uk

www.fao.org/cfs/cfs-hlpe
quality biodiversity, and pollinator health.\textsuperscript{194-196} These practices also improve public health and provide safer conditions for workers. Furthermore, as grass-fed pastures are often not suitable to intensive crop production, these systems can use marginal land to actually increase food security. All these factors should be taken into account.

3.3.1 GHG emissions from the livestock sector (pg 52)
This section is missing the large GHG benefits from encouraging reduced livestock consumption.

“This mitigation (reduction or prevention) of the sector’s emissions could be achieved by a reduction in production and/or consumption, by an increase in production efficiency, or by shifting the structure of production towards less emission-intensive animal food types.” (pg 62)

This section could further stress the effects of consumption change on mitigation (see footnotes 18 and 19 in the section above).

3. DEVELOPED NATIONS’ CONSUMERS ARE DEMANDING MEAT ALTERNATIVES
The report’s focus on increasing livestock production fails to note that developed nations — who currently over-consume meat and animal products — are beginning to shift towards more nutritionally and environmentally sound plant-based diets. Research suggests that 36 percent of U.S. consumers prefer milk and meat alternatives and that between 26 and 41 percent of Americans have eaten less meat over the past year.\textsuperscript{198} In fact, many food service providers are aware of these trends and ready to provide such options. One Datassential study found that, “reducing the portion size of animal protein on menus is expected by nearly half of operators to increase the healthfulness of the

\textsuperscript{194} Poudel DD, Horwath WR, Lanini WT, Temple SR, van Bruggen AHC. (2002). \textit{Comparison of soil N availability and leaching potential, crop yields and weeds in organic, low-input and conventional farming systems in northern California}. \textit{Agriculture, Ecosystems & Environment}.


entrees, and by over a third to increase the culinary innovation involved with the dishes.”199 The same survey found that meals with animal protein as a garnish, rather than as a central portion, appeal to half of consumers; and more than seventy percent of consumers were concerned about transparency in food sourcing.

Comments:

Projections (pg. 13)

Implicit in these projections are that total global meat/animal product consumption will increase significantly — a scenario that does not have to happen.

“As diets become richer and more diverse, the livestock sector offers improvements to the nutrition of the vast majority of the world. Livestock products not only provide high-value protein but also are important sources of a wide range of essential micronutrients, in particular minerals such as iron and zinc, and vitamins such as vitamin A. By providing essential nutrients, especially in the critical first 1,000 days from conception, animal-sourced foods can help ensure normal physical and cognitive development. Well-nourished and well-educated children can grow up to be healthy young adults who are able to realize their full potential and contribute to family income-earning and national development. On the other hand, diets rich in livestock products, in particular red meats, are implicated in rising health concerns in some countries, although the scientific evidence and nutritional guidance has often changed through time and can be confusing to consumers.” (pg 28)

This paragraph should open with the acknowledgement that, in developed countries, industrially produced livestock food products are often implicated in some of the most pressing chronic health problems. High consumption of industrially produced meat, especially red and processed meat, is associated with increased risks of diet-related disease, including heart disease, diabetes and cancer.200 U.S. government guidance on need to consume less meat is clear. The 2010 USDA/HHS guidelines recommend no more than 1.8 ounce servings a day of red meat.203


203 USDA and HHS (2010), Dietary Guidelines for Americans
emphasized that a plant-based diet is a nutritionally appropriate alternative that is beneficial to the health of people and the environment. The USDA,204 Academy of Nutrition and Dietetics,205 and other top health organizations agree that a well-planned vegetarian or vegan diet can provide all necessary nutrients and protein required for a healthy diet. And importantly plant-based diets are associated with decreased risks of all heart disease, diabetes and some cancers.206

Claims that red meat and processed meats are “nutrient dense” are misleading because they ignore all the harmful components of industrially produced meat:

4a. ANTIBIOTICS
The industrial system of food animal production is putting human health at risk due to misuse of vital antibiotics. Seventy to eighty percent of antibiotics sold207 in the United States go toward livestock production. These drugs are often used to accelerate animal growth and prevent diseases stemming from poor diets and crowded, unsanitary conditions, rather than for treatment of sick animals.208 In its 2013 report Antibiotic Resistance Threats in the United States, the CDC states: “Up to half of antibiotic use in humans and much of antibiotic use in animals is unnecessary and inappropriate and makes everyone less safe.”209

Comments:

“Livestock production and products also carry important health risks, especially in terms of food-borne disease, emerging diseases and occupational hazards. There are also social concerns such as human health, animal care and industrialization associated with livestock, with attendant social and economic costs.” (pg 8)

**Antibiotic resistance should be included as a health risk.**

204 USDA, Healthy Eating Tips. http://www.choosemyplate.gov/ten-tips-healthy-eating-for-vegetarians
“Risks in an interconnected world” (pg 50)

Antibiotic resistance should be included as a health risk.

4b. GROWTH HORMONES
Industrial meat production, specifically in the United States, relies heavily on the use of growth hormones and growth promoters in beef, pork and turkey production to fatten animals as quickly as possible with the least amount of feed. While this can be economically advantageous for meat companies and producers, it also may pose serious risks to humans, animals and the environment. 210 Numerous studies have found potential links between zeranol (a growth hormone) intake and heightened risk for breast cancer. 211

4c. CANCER RISKS
There is strong evidence that diets high in red meat (beef, pork, lamb) and processed meat (hot dogs, bacon, sausage, deli meats, etc.) increase the risk for colorectal cancer. 212 Many epidemiologic studies have reported a modest but significant association between high intakes of processed meats and red meats and increases in cancer incidence and mortality in a dose-response relationship, as well as death from other causes. 213, 214 Both the American Institute for Cancer Research (AICR)’s Recommendations for Cancer Prevention and the American Cancer Society’s guidelines mention the importance of nutrition, including reduced red and processed meat, and physical activity for cancer prevention.


www.fao.org/cfs/cfs-hlpe
In contrast, plant-based diets are associated with decreased risks of all heart disease, diabetes and some cancers.216

4d. DIOXIN RISKS
According to the Environmental Protection Agency, 95 percent of our exposure to cancer-causing dioxin like compounds (DLC) come from meat, dairy, fish and shellfish.217 The Food and Drug Administration, Environmental Protection Agency, World Health Organization and National Academy of Sciences all agree that the best way to lower personal dioxin levels is to reduce dietary exposure to dioxins by lowering animal fat intake and increasing consumption of fruits, vegetables, and whole grains.218

5. HEALTH BENEFITS OF GRASS-FED/PASTURED MEAT
When consumed in moderation, responsibly raised meat and animal products can bring health benefits. Grass-fed and pastured meat and dairy provide a dense source for many of the shortfall nutrients identified in the DGAC’s report recommendations, including calcium, iron, and A, E, and B vitamins. Grass-fed meat is leaner than that produced in the grain-fed commodity system and, in the case of both meat and dairy, the fat profile is healthier than that of its grain fed counterparts. A 2010 review of three decades of research found that grass-fed beef provides higher levels of nutrients, including Omega-3 fats, beta-carotene, conjugated linoleic acid and Vitamin E than grain-fed beef.219 A 2013 study published in PloS ONE found that grass-fed organic dairy has far higher levels of Omega-3 fats than grain-fed dairy.220

217 Food and Drug Administration, A Veterinarian Newsletter July/August 2000 Volume XV, No IV
98. Kierra Box, Friends of the Earth England, Wales and Northern Ireland, United Kingdom

Comments on ‘Sustainable agricultural development for food security and nutrition, including the role of livestock’ – HLPE consultation

Friends of the Earth England, Wales and Northern Ireland welcomes this important and comprehensive report as a positive contribution to highlighting and exploring issues of key significance to the future of global food security. However, we feel that in its current form, this report adopts a flawed approach to the main drivers of change in the livestock sector, and hence the preferred recommendations for action.

As it currently stands, the report fails to identify the huge role agribusiness practices, meat and feed industry concerns and national Government policies have in shaping our understanding of the issue; and of the role that shifts in Government policies, consumer education and behavior change may have in moving to more sustainable ways of producing and consuming meat products as a method of ensuring food security.

Friends of the Earth England, Wales and Northern Ireland offers some overarching comments on the report below, followed by some specific responses to a number of the questions set out in this consultation.

Overall, we feel that the report:

- Does not acknowledge that we already grow enough food to feed about 10 billion people – and that food poverty and under-nutrition are caused by barriers to efficient distribution and storage or political concerns rather than the ability of the planet to produce enough food (see also Solving the Global Food Crisis, Friends of the Earth 2012). Therefore, the report is overly focused on increased production – primarily through technological means - rather than tackling inequality, introducing more equitable, efficient distribution and bringing an end to current policies which prioritise feeding livestock and creating fuel over feeding people. These points should be at the forefront of this debate. See also ‘Doubling food production to feed the 9 billion: A critical perspective on a key discourse of food security in the UK’ – I Tomlinson, 2011
- Ignores the role of agribusiness and trade policy in promoting livestock production and consumption.
- Does not appropriately engage with the needs of small-scale food producers – for example, P13 suggests that an increase in agricultural production ‘including livestock’ offers an opportunity to lift smallholders out of poverty, but does not tackle existing issues such as the imbalance between large and small scale producers in accessing new markets, increased competition for land and water resources which would be exacerbated by a high-livestock future, and alternative options which may suit smallholders better, such as producing more plant-based outputs to feed local populations and increase revenue rather than moving towards livestock as an inevitable or sole option.
- Does not place enough weight on the potential for dietary change to mitigate the need for increased livestock production or as an alternative response to the demands of population growth, despite P25 acknowledging that the Western high meat would only be achievable
with “massive land-use change, intensive livestock production systems and intensive use of arable land”. A reduction in consumption of livestock products is needed in high consuming countries in order to tackle the current trend towards negative health impacts and ever-increasing livestock emissions while at the same time safeguarding the right of less consuming countries to increase meat consumption alongside other forms of protein where necessary to tackle under-nourishment and nutrient deficiencies. For more on the need for a ‘contraction and convergence’ approach to meat consumption, see Food, livestock production, energy, climate change, and health – McMichael et al, 2007, and Eating the Planet, Friends of the Earth 2009

- Takes a flawed approach to defining and tackling the assumed livestock ‘yield gap’. Numerous studies have shown that the perceived increases in yield possible through use of new technologies are neither as great as once hoped, nor as practical to implement as is sometimes assumed. We would argue that two of the most significant opportunities in terms of tackling the ‘yield gap’ would be around decreasing loss and waste in the supply chain, and increasing the proportion of each animal used, particularly in wealthier countries, to ensure more efficient use of existing livestock production. The report also:

  - Fails to account for the possible significant negative impacts upon the climate that may stem from increased/intensified livestock production (in the form of increased emissions and requirements for land, feed and water) and hence the possible impacts of this on other forms of food production. These may include decreased yields of other agricultural products due to global warming, increased vulnerability to extreme weather events and flooding due to the depletion of natural protections or climate change; and the impact that soil degradation or increased demand on land by livestock may have on the ability of smallholders to successfully grow other types of food crop for human consumption. It is important to note that despite the relatively lower carbon footprint of animals reared in more intensive and specialized systems, an intensified system would still have a negative impact due to the increased input requirements and the overall increase in livestock numbers.

- States on P43 that “there is still a big yield gap to be addressed that holds the potential to increase production and efficiency in a sustainable way... Smallholder mixed crop/livestock systems will not provide all the food that will be required to feed a global population of over 9 billion people by 2050: specialized cropping systems and intensive livestock systems will play their part.” This conclusion both ignores the fact that we already produce enough food to feed a population of this size, and assumes that it is both desirable and possible to increase yields through intensification in all types of agricultural holding, in all types of location. Previous intensification of livestock production has come with huge negative impacts – from requiring vast amounts of high protein soy feed, to localised pollution, to severe animal welfare impacts and the degradation of workers’ rights. This is a wasteful model with many drawbacks and we would argue that it should not be seen as a desirable tool to ensure future food security. See Livestock’s Long Shadow - FAO, 2006, Soy Consumption for Feed and Fuel in the EU - Van Gedler et al, October 2008 and Soy: Big Business - The Dutch Soy Coalition, 2008.

- States on P55 that “adjustment in the production systems structure will be an important adaptation measure. Grass yields benefit more (or are hurt less) from
climate change than crop yields. Climate change would hence favour the grazing systems, leading potentially to a change in the current trend towards more intensive systems. This would seem to suggest that in order to reliably improve future food security, a move away from intensive production systems which are reliant on predictable and ever-increasing crop yields would be the preferred solution – yet the rest of the report relies on a move towards intensification of livestock production as a means to meet an assumed maximum yield. See: Solutions for a cultivated planet, Foley et al, 2011

Addressing questions:

1) The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

- We do not feel that this report strikes the correct balance between overall agricultural development and that of the livestock sector. A sustainable diet is defined by the FAO as one with ‘low environmental impacts which contribute[s] to food and nutrition security and to healthy life for present and future generations.’ Given our current understanding of the environmental impacts of livestock and the effect that a high-meat diet has on personal health, we would question whether the development of the livestock sector should be seen as supporting healthy, sustainable diets, while the huge contribution of livestock to climate change and hence to environmental change and decreased yields in the future casts doubt upon the sector as an appropriate method of supporting food security at a global level. This is not to say that in some locations there may not be a case for supporting the sustainable growth of the livestock sector in order to tackle malnutrition and hunger in specific local populations, but that efforts should focus on cutting food waste, improving distribution and storage facilities, and on tackling other social and financial barriers to food in the first instance. See also What is a sustainable healthy diet? – Tara Garnett, FCRN, 2014, and Food, livestock production, energy, climate change, and health – McMichael et al, 2007.

- Several rigorous studies have already looked at the challenge of ensuring accessible, healthy food is available to all – and have found that dietary change must play a key part in this. The UK Government’s report Future of Food and Farming – 2011 – concluded that “Demand for the most resource-intensive types of food must be contained”, while Feeding a Thirsty World - Stockholm International Water Institute, 2012, questions “whether continuing conventional propositions that focus almost exclusively on increasing production to meet demand is the only, and the smartest, way forward in feeding a growing world population”. All of these reports see a shift towards less consumption, and specifically, less consumption of meat products, as key to ensuring food security.

- There should be greater weight given to the possible contribution of plant-based foods to nutrition, particularly as alternative forms of protein (see: The nutritional value of plant-based diets in relation to human amino acid and protein requirements, Millward, 1999 and the WWF Livewell report, Appendices 5 & 6 ) and the possible impacts of changes in
consumption on environmental sustainability - If we reduced our meat consumption in the more affluent world we could feed several billion more people whilst drastically reducing emissions, particularly of the most potent methane and nitrous oxides. See: http://iopscience.iop.org/1748-9326/8/3/034015 and Bojana Bajželjet al (2014) Importance of food-demand management for climate mitigation Nature Climate Change 4, 924–929 (2014). Additionally:

- The energy conversion ratio from feed to meat is low. It has been estimated that the number of people fed in a year per hectare ranges from 22 for potatoes and 19 for rice to 1 and 2, respectively, for beef and lamb – see: The effect of dietary changes on agriculture - Spedding CRW. In: Lewis B, Assmann G, eds. The social and economic contexts of coronary prevention. London, Current Medical Literature, 1990

- Currently, 36% of the calories produced by the world’s crops are being used for animal feed, and only 12% of those feed calories ultimately contribute to the human diet (as meat and other animal products). The report should focus more on producing these more efficient forms of nutrition.

4) The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

- P24 assumes a continuing growth in meat and dairy consumption, which doesn’t take into account the possible contribution of dietary change (particularly in more developed countries) to global food security and climate stability. The modelling used also assumes that as population and wealth increase in less developed countries, this will necessarily lead to a similar increase in consumption – and similar consumption patterns - as seen previously in wealthier nations. Given growing concerns about the health impacts of processed and red meat, it seems likely that diets may move away from some of these forms of meat – but P28 of the report instead appears to dismiss the impact of Governmental nutrition campaigns and public health guidance on the grounds that these have seen significant change in recent years as the science underpinning them has shifted. The report could do more to investigate the contribution of changes in consumption, rather than production, to a food secure future. Again, see ‘Doubling food production to feed the 9 billion: A critical perspective on a key discourse of food security in the UK’ – I Tomlinson, 2011

- Even shifting to sustainable forms of livestock production will not prevent catastrophic climate change if demand is not addressed. Chatham House conclude that “shifting all livestock farming to the least emissions-intensive production practices available within a particular region or agro-ecological zone could offer emissions reductions of 32 per cent at current output levels. This would be a remarkable achievement, but not enough to offset rising demand for meat and dairy products: livestock emissions would continue on an upward trajectory.” See FAO (2013) and Davidson (2012), cited in Livestock: Climate Change’s Forgotten Sector – Chatham House, 2014

- In fact, the greatest potential for emissions reduction exists on the demand side. One assessment of mitigation opportunities in agriculture estimated that decreasing average worldwide per capita meat consumption to 90g per day could avoid 2.15Gt CO2 e of

- The chart on P27 doesn’t draw an incontrovertible link between increased GDP and meat consumption. In fact, it suggests that, with the notable exception of the USA, many higher GDP countries have lower consumption levels that those with medium-high GDPs. There is evidence that in some developed countries, meat consumption is actually declining, and the type of meat consumed is changing. See:
  - Meat consumption per capita in the EU is expected to fall back to 2012 levels by 2024 - Prospects for EU agricultural markets and income 2014 - 2024
  - Meat consumption per capita in the USA has also fallen - http://www.packagedfacts.com/Meat-Poultry-Trends-7494416/

- Research carried out by Chatham house found that consumers in Brazil, China and India “demonstrated high levels of acceptance of anthropogenic climate change, greater consideration of climate change when choosing meat and dairy, and a greater willingness to modify their consumption behaviour than the average”. See Livestock: Climate Change’s Forgotten Sector – Chatham House, 2014

- More weight should be given to health as a driver of dietary trends – specifically the growing evidence base linking red and processed meats with health risks including colorectal cancers and heart disease. The World Health Organisation has documented a strong link between high consumption of processed meats and cancer, and a weaker one between diets high in red meat and a higher incidence of bowel cancer and heart disease. (See: Carcinogenicity of consumption of red and processed meat, International Agency for Research on Cancer Monograph Working Group - World Health Organisation, October 2015). There is also some evidence of a link between high meat diets and other cancers, diabetes and obesity. Modelling carried out for Friends of the Earth found that if the UK population was to shift to a diet including no more than three portions of meat per week, this would save 45,000 lives a year (from cancer, heart disease and strokes) and save the NHS £1.2bn a year. See:
  - For a summary of evidence, see Healthy Planet Eating: How lower meat diets can save lives and the planet - Friends of the Earth with modelling by Oxford University Heart Promotion Group, 2010.
  - Katz and Meller (2014)

- This health-driven trend will only be exacerbated by an intensification of farming practices, as evidence already shows that pasture-reared beef contains less fat and has a higher proportion of beneficial/healthy omega-3 fatty acids compared to intensively reared beef – see: Dhiman et al, Factors affecting conjugated linoleic acid content in milk and meat, Crit Rev Food Sci Nutri, 45:463 (2005).

5) The report has identified a wide range of challenges likely to be faced in the coming period to
which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

- Increasing the productivity of the livestock sector may lead to an unwanted ‘rebound effect’, whereby increased productivity drives down prices and increases demand for meat and dairy, potentially reducing the extent of emissions savings and the extent to which increases in production might offer global food security.

- The Alexandratos and Bruinsma projections (P28) as the report admits, do not take into account the impacts of climate change or biofuel growth on food yields. The report also fails to quantify or anticipate the impact of increased livestock production on climate change. According to one study, if current dietary trends (increasing global consumption of animal products) were to continue, emissions of CH₄ and N₂O would more than double by 2055 from 1995 levels (Popp et al. (2010)). Both of these impacts are vital to the applicability of any modelling.

- As climate change worsens its impacts on food, pastoral, and fishing systems, it will exacerbate food insecurity. In March this year the Intergovernmental Panel on Climate Change (IPCC) predicted up to 2% yield loss in farming per decade – this will only increase if Livestock numbers are to double as predicted by this report.

- A warmer, more humid atmosphere will increase the impacts of ground level ozone, which reduces the rate of photosynthesis in plants, hampering growth and making crops more vulnerable to drought. A number of livestock fodder crops, including soya, alfalfa and clover are particularly sensitive to ozone, with IPCC projections suggesting that soybean yields could be reduced by as much as 19% by 2030, exacerbated by hotter drier conditions.

- Seventy per cent of crops used directly for human food consumption rely on insects for pollination, but bees and other pollinators are vulnerable to changes such as climate extremes, and evidence shows that the proliferation of GM crops and pesticides is already damaging the health of the global pollinator population.

10) What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.),
regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

- Our 2009 study *Eating the Planet* found that feeding the world in 2050 is possible without the most intensive forms of animal and crop production or a massive expansion of agricultural land if developed countries adopt healthier, lower-meat diets and food is distributed more equally. In addition, the report found that sufficient food can be provided in 2050 without further deforestation, through robust policy intervention. In answering this question, we reiterate the recommendations outlined in *Eating the Planet*, namely:
  - Any effective measures to reduce the level of consumption of animal products (including those derived from eggs and milk) will be beneficial in terms of environmental impacts, animal welfare, biodiversity, and bioenergy potential.
  - Research and technical development must be directed towards agricultural practices that follow organic standards or are otherwise environmentally less destructive and are nevertheless able to achieve high yield levels.
  - Environmental issues associated with bioenergy, in particular of dedicated bioenergy crops, should be evaluated carefully before pushing these technologies on a grand scale. Additionally:
    - All countries should offer public health and nutrition advice based around diets that are both healthy and sustainable (as defined by FCRN, above). This advice must take account of the impact of high meat diets on food security, individual health and the wider environment.
    - Governments should shift subsidies from factory farming to the production of better-quality meat and a healthier overall food production balance through diverse, resilient and sustainable agriculture.
    - International agencies need to acknowledge and act on the positive role that sustainable diets can play in tackling global food and water security and environmental problems. Targets and measures should be set to address excessive meat and dairy consumption, ensure more equitable distribution and start to shift the trend away from investment in industrial livestock farming.
    - Existing trade rules, established through the World Trade Organisation and through country-to-country, country-to-region, and region-to-region trade agreements, need to be reformed to encourage more sustainable forms of trade which prioritise regional and local food security.
    - Global and bilateral trade agreements must help the world’s poorest countries to produce more food for local and regional consumption by allowing them the freedom to protect and develop their agricultural industries. This means allowing higher tariffs on food imports to avoid crippling competition from countries which already have well-developed and heavily subsidised industries. Countries should also be allowed to put in place mechanisms that protect their food security rather than promote unfettered exports. This means encouraging food reserves and buffer stocks, and allowing countries to regulate their production, trade and demand for food products.
    - All nations must drop current targets for biofuels, responsible for more than half of the increase in demand for grains and vegetable oils between 2005 and 2007 and the recent surge in ‘land grabs’ throughout Africa.
We must end damaging speculation in commodity markets, and increase regulation of deals based around food derivatives.

Governments in wealthier countries should:

- Introduce clear standards to ensure that meals paid for by taxpayers reflect environmental and health factors and rely on less but better meat and dairy in menus.
- Introduce labelling for grass-fed meat and dairy products, as they are healthier and more planet-friendly than factory farmed options. This would help people make more informed food choices and stimulate the market for these products. Industry has a key role in trialling new products that have a reduced impact, talking to their customers about more sustainable diets, supporting farmers that produce grassfed meat and dairy and promoting their products.
- Focus interventions in the food systems of other countries on the provision of assistance in the form of support for development of sustainable agricultural practices, rather than pressure for intensification or the adoption of genetically modified seeds and pesticides which threaten biodiversity.
- Ensure that public money is not used to invest in intensive livestock production through global loan or grant programmes, and use governance roles within global structures such as the World Bank to ensure that future investment schemes do not contravene sustainable development strategies.
- Research modern sustainable farming systems which use lower levels of livestock and inputs and which maximise the potential for mixed farming – and communicate the results of this research to other countries to inform development of sustainable food production systems.

Further reading/ additional key reports:

- **What’s feeding our food? The Environmental and social impacts of the livestock sector** – Friends of the Earth, 2008
- **Eating the Planet** – Friends of the Earth, 2012
- **Solving the Global Food Crisis** – Friends of the Earth, 2012
- **Actions and Accountability to Advance Nutrition and Sustainable Development** – Global Nutrition Report, 2015
- **Livestock: Climate Change’s Forgotten Sector** – Chatham House, 2014
- **Toast: Climate Change and the Right to Food** – Friends of the Earth, 2015

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99. Helena Paul, EcoNexus, United Kingdom
Comments on Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock - The V0 DRAFT REPORT / 2 October 2015

From EcoNexus: www.econexus.info Co-Director Helena Paul h.paul@econexus.info

Comments in blue, quotes from text in black

Contents
1. Our conclusions
2. Answers to some of the questions from pages 2 and 3 of the draft below: 3. Response to the choice list on page 64 of the draft
4. Brief response to draft conclusions of report starting page 83 5. Particular text extracts and related comments below them

1. Our conclusions

We were rather disappointed with the first draft of the report.

It states old assumptions without criticism or bundles together opposing views without comment. It nods to smallholders/small farmers but at the same has no real critique of industrial livestock monocultures, with which smallholders cannot readily co-exist, certainly not without new supportive consultative processes, policies and infrastructure, about which the report seems to have few recommendations.

So far the report has little new to say. It does not even mention the loss of livestock diversity, which is a serious problem for livestock as for everything else related to biodiversity / agricultural biodiversity. Although recognising that comments are sought for more than one round, this seems a poor base to start from.

Two major issues missing from the report:
- land rights, including collective rights; land grabbing and issues around so-called marginal land
- the importance of developing rural infrastructure in close discussion with small farmers

The report talks about small farmers and industrial monoculture agriculture, but does not discuss whether they can actually co-exist, which is surely the role of such a report. For example:

www.fao.org/cfs/cfs-hlpe
‘Farmers in the South are increasingly outcompeted by huge factory farms owned by large investors. Patents on GM poultry could increase the cost of day old chicken and contribute further to industrial concentration and loss of livelihoods.

This is comparable with the higher costs to farmers of GM seed.’

See: Dr. Ricarda Steinbrecher & Dr. Susanne Gura If Bird Flu is the question are GM chickens the answer: http://econexus.info/gm-chicken-solution-bird-flu

It also echoes assumptions often made by those who promote industrial agriculture, biofuels and GMOs generally, while patronising the public, small farmers etc. It should not be doing this and should either report them as assumptions that may or may not have some basis and then provide balancing arguments, or otherwise leave them out.

The report does not put enough emphasis on the importance of smallholder farmers for delivering food, livelihoods, environmental protection etc. Pastoralists remain among the few able to graze livestock sustainably in certain regions when they are supported rather than undermined in so doing.

We urgently need to protect the diversity of livestock breeds and livestock cultures and knowledge around the world – this knowledge is a vital resource for the future. We need to listen more to smallholders, small farmers and their legitimate representatives.

Research into livestock issues should be centred on the most vulnerable - smallholders/small farmers, who are still not heeded in the discussions.

Livestock plays many vital roles apart from production. It is crucial to maintain the biological diversity of grazing landscapes; it provides livelihoods; it is culturally of great importance in several parts of the world. Few of these issues are adequately addressed.

The language of ecosystem services, water services and carbon storage is very unfortunate as it can lay the foundations for a market approach that will not help smallholders: MRV is complex, extremely difficult for smallholders to carry out, likely to reward carbon accountants for than anyone else, and also likely to be unreliable.

2. Answers to some of the questions from pages 2 and 3 below:

What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential
of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Key policy initiatives include

- Developing improvements in rural infrastructure in consultation with communities and individuals with rural livelihoods. This has been identified, particularly by young people, as a barrier to their desire to become farmers.
- Land rights for small farmers and the marginalised are a fundamental issue everywhere and need to be addressed urgently andconcertedly.
  - Addressing land rights should include collective land rights and contentious issues around so-called marginal or degraded land, often used by women and local communities. However, the term is also used to call for ‘ecosystem restoration’, which must not be used to gain control over such land.
  - We also need to address the issue of land grabbing and the limitation of pastoralist movement and rights (see below, comment on box 11).
- Closer contact between ‘consumers’/eaters and producers: we believe that farmers markets in the UK have been a very important way to put producers and eaters of food in touch with each other so that consumers can learn something about the challenges that face farmers, about seasonality, about prices and about quality, size and shape.
- Community supported agriculture (CSA) is important for the same reasons, and the practice is plainly flourishing in, eg: several parts of the UK
- Consulting with young people who are or would like to become farmers and who currently feel that it is impossible for them to flourish is vital.
- Imbalances in power between players are serious in agriculture and need to be addressed by centering the discussion on farmers and rural communities.

11. The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Data gaps:

- We need more data here about small farmers, the challenges they face, policies that discriminate against them and policies that could assist them. For example, government policy worldwide seems currently to be neglecting rural infrastructure, which is essential if farmers are to prosper and to stay in the countryside and not join the exodus to the city, a pattern we see all over the world.
- We need a major shift, from large-scale monoculture agriculture without people, to an agriculture that creates jobs, including work on the land in good conditions where people can make a decent living, applying the principles of agroecology (which includes organic, biodynamic and permaculture practices).
- We also need more data about issues beyond mere yield, such as the importance of

www.fao.org/cfs/cfs-hlpe
pasture for biodiversity, water and soils as well as productivity and the quality of the product. Synergistic effects are important. Livestock have many roles apart from merely being meat.

- Data on yields, soil, water, jobs, nutrition from small, mixed cropping/livestock systems including monocultures would be helpful.
- Data on closed system agriculture/agroecology versus open system where impacts are externalised would be a useful contribution

12. Are there any major omissions or gaps in the report? Are topics under---or over---represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

- The claims about GMOs are unsound – eg: that public resistance to GMOs is due to ignorance and superstition. Attached is a report made by doctors about the new challenges they are facing in Argentina in a region dominated by the production of GM crops for export as animal feed to Europe and China. They report the emergence of new disease patterns in local communities that they have not seen before and which they attribute to the fact that their patients live surrounded by GM crop monocultures that are sprayed with agrotoxics (see statement from the 1st NATIONAL MEETING OF PHYSICIANS IN THE CROP---SPRAYED TOWNS, 27---28.8.2010: http://www.reduas.com.ar/statement---from---the---1st---national---meeting---of---physicians---in---the---crop---sprayed---towns/
And they had a 3rd meeting this year:

- Current GM crops mainly rely on either tolerating herbicides or expressing pesticide (Bt) and it is also the case there is little that is genuinely new on offer that cannot be matched by conventionally bred crops.

We need a new approach that looks at farming as supported by interacting ecological systems, including water, soil, climate etc.

- Livestock diversity: This is being seriously eroded as corporate concentration in the livestock industry increases. We urgently need to give more attention to preserving locally adapted varieties of livestock and also seed, in close consultation with small farmers and local communities. This is a major priority, currently not properly addressed in the draft, especially in the face of climate change, salinisation and erosion of soils, increased extremes of storm, heat, drought and flood etc.

3.4.2 Animal and human diseases, page 58

- The lack of diversity and large scale intensive livestock rearing (including the heightened and regular administration of antibiotics and the heightened levels of stress) is highly problematic, as it makes livestock more vulnerable to disease and increases the risk of epidemics (eg bird flu). See: Livestock Breeding in the Hands of Corporations by Susanne Gura: https://www.grain.org/article/entries/651---livestock---breeding---in---the---hands---of---corporations, and If Bird Flu is the question, are GM chicken the answer? by Ricarda Steinbrecher and Susanne Gura (especially section ‘realities of bird flu and chicken farming)
From EcoNexus response to the BBSRC Consultation on Future Directions in Research Relating to Food Security, July 2009

We find research priority should be given to achieving a broader genetic base in our food crops and livestock as the best protection against the uncertainty of climatic factors and biotic and abiotic stresses in general. We also believe that soil science is profoundly neglected and requires urgent attention, both in studying the soil food web and how to restore soils. We believe that research should focus on reducing our dependence on imported feeds for our livestock and in changing the way livestock is regarded simply on the basis of productivity. On an integrated farm livestock can play a crucial role, for example in fertilizing soils and removing pests, but this aspect has been lost with intensification. The old demand for research to move out from the lab to the field and be centred more on the farmer is more valid than ever. Farmers have been disempowered by years of top-down, sometimes contradictory instructions; in the future they should be encouraged to experiment with crops, varieties and methods, some of which are in fact old methods that we have neglected. Urban gardening is an important element of future food security north and south, but people need training in how to achieve good results.

- CGIAR needs to focus far more urgently on the issue of agricultural biodiversity, understanding and preserving varieties, understanding the role of livestock diversity and what particular seed requires for germination to take place, etc.
- We need a stronger focus in the report on the importance of the soil ecosystem and the vital role it plays in plant health and growth, plus the role that extensive livestock can play in enhancing soil ecosystems.

2. Response to the choice list on page 64

Utilization of land: land sharing or land sparing? (Land sharing integrates agricultural production with ecosystem services, such as biodiversity, hedgerows, trees, ponds and green buffer zones, in a patchwork of low-intensity agriculture on a given area of land, whereas land sparing separates agricultural production from these ecosystem services and involves large, 5 separate areas of sustainably intensified agriculture and wilderness [Fischer et al., 2014]).

Land sharing can be both highly productive and protect biodiversity. Sustainable intensification is a very ambiguous term indeed and needs a clear definition if the term is to be used. Like ‘climate smart agriculture’ it is currently used to mean completely different practices that probably cannot actually co-exist.

- Carbon-intensive or low carbon agricultural production systems? (Influenced from outside the sector by the price of fossil fuels)

Clearly agriculture needs to reduce dependency on fossil fuel at every level. We also need careful analysis of large-scale monoculture farming systems that depend on very large machinery. These are sometimes claimed as less carbon intensive and more productive than small-scale operations and these claims need to be critically examined.

www.fao.org/cfs/cfs-hlpe
We have spoken to farmers who inform us that the machinery has got too heavy, too big and that it cuts too deep into the land. Farmers in Europe are actually seeking out and repairing old machinery as more appropriate to their needs. Also the claims made for techniques like direct drilling will need to be properly assessed, and cannot merely be given support on the basis of claims by corporations and large monoculture farmers.

· _Scale of production: big or small farming operations? (Economies of scale at the expense of labour and viable rural communities?)_ 10

There is data to show that smallscale yields more than large-scale and provides more jobs as well as other advantages. We would like to see a comparative analysis of yield between large-scale monocultures and small-scale production. Yield has to be seen more broadly than simply the tonnes extracted from the land and should be more rigorously analysed.

For example, we suspect that Argentina was actually producing more tonnes of food before the advent of GM monoculture production of soy and corn for export as animal feed than it is now, but do not know of any comparative data.

However, there is data on monoculture vs mixed and intercropping, which shows that intercropping achieves higher yields (in tonnes per acre) than monocultures and more research into this is needed.

Useful References re intercropping and organic practices

In Brazil the root vegetable arracha and onions grown in monocultures needed nearly 50% more land to produce the same yield as when grown in the same field (Zarate et al. 2008). Zarate NAH, Vicira MDC, Rech J, Quast A, Pontim BCA, Gassi RP (2008). Yield and gross income of arracacha in monocrop and intercropping with the Japanese bunching onion and parsley. _Horticultura Brasileira_ 26(2): 287-291

In Ethiopia, the yields of wheat and faba beans grown together were about 20% higher then when grown on two separate fields; the mixed (intercropped) field had also 20% less weeds, and viral damage to the beans was reduced by a third (Agegnehu et al. 2008).


Badgley et al. (2007) found that in the developing world, organic systems produce 80% more than conventional systems, with organic inputs more easily accessible in poor countries. The authors also calculated that the use of leguminous cover crops could replace the amount of synthetic fertilisers currently in use.


· _Integration or specialization? (Crop–livestock integrated operations or purchasing feed_
for 11 outside the farm, often from imported sources?). 12

Feed: purchase from other countries of feed, especially GM feed, is a major problem as we have indicated elsewhere.

Agriculture needs to focus on being more of a closed system (where inputs come from within and outputs are re-used within the system) rather than an open system where the negative impacts are externalised on others and valuable nutrients are constantly being lost. This includes crop-livestock integration. This issue is not yet properly addressed in the report.

_Coarming to food supply chains or local production for local consumption?

(Economic 13 and social trade-offs) 14

Local production for local consumption can in fact bring better food and economic advantage. International food supply chains often end up as dumping mechanisms that destroy small farmers.

The impact on small local producers of dumping food (including milk and meat) on other countries is not mentioned anywhere in the report and should be addressed.

- _Self-sufficiency or international trade? (Economic and social trade-offs, implications for 15 viability of some farm systems and rural communities) 16

Self sufficiency makes a lot of sense where food can be produced in the country/region/locality where it is consumed. We need to find a balance between Self-sufficiency or international trade, so that small farmers can survive the impacts of international trade, which gives the advantage to large commercial interests. Where producers and consumers can be in direct contact, it is likely to be easier for producers to get a fair price, because there are not so many ‘middlemen’.

- _Agriculture as an economic activity or social support system? (Economic and social 17 trade-offs) 18

Agriculture is obviously both, but in order to be genuinely the former for society as a whole it needs to prioritise the latter first.

The standard idea that poor countries begin by making most of their revenue from agriculture and then move to having very few on the land and importing major amounts of food is not sustainable in the long term, yet there seems to be an assumption behind much of this report that this development is inevitable. If the majority of countries seek to conform to this pattern, then production will be in the hands of a very few very large corporations employing landless people with few rights. Such a model of agriculture is neither SOCIALLY nor ENVIRONMENTALLY sustainable. Increasingly it will reach planetary boundaries as well as social and economic ones.

We need to prioritise assisting small farmers to adapt to climate change, but such adaptation MUST centre on the farmers themselves and their needs and not be a top-down process.

- _Adoption of new or existing technologies and practices? (Risk taking: precautionary 19 principle or risk regulation?)
We have reached a point with agriculture and human development generally where it is even more essential than before to apply precaution to our activities, because we are already pressing on planetary boundaries. This means we absolutely cannot afford activities that are later shown to be extremely damaging to planetary systems. We need technology assessments that will also carry out the analysis into whether a suggested technology is appropriate, or if other technologies or practices may be more appropriate and sustainable.

3. Draft conclusions of report starting page 83

The language of the conclusions is currently standard ‘market-oriented’ language and the context envisaged is that of global markets: stakeholders, public-private partnerships etc. This needs to be more carefully thought through and written in a different style.

The expression: ‘enforceable property rights, land access and 4 tenure’ does not appear to encompass basic land rights, which are fundamental.

4. Particular text extracts and related comments below them

Page 39

Producing biofuels creates valuable by-products, such as distillers’ dried grains (DDGs) and oilseed meals that can be used as animal feed and can substitute for grain in animal rations.

This is a conclusion that risks promoting two bad ideas (biofuels and animal feed as a by-product) as excuses for each other. FAO itself produced a report on this that goes much further and speculates at length, but with little supporting evidence, on these claimed possibilities: BIOFUEL CO-PRODUCTS AS LIVESTOCK FEED: Opportunities and challenges

Page 43

Smallholder mixed crop/livestock systems will not provide all the food that will be required to feed a global population of over 9 billion people by 2050: specialized cropping systems and intensive livestock systems will play their part.

Here we have the standard assumption that smallholder systems cannot feed the world; that intensive livestock systems are necessary; and that intensive and smallholder agriculture can co-exist. There is other data that suggests strongly that we already produce enough food to feed 10 billion people and more (http://www.huffingtonpost.com/eric-holt-gimenez/world-hunger_b_1463429.html). Distribution and storage of food, and feeding animals with food fit for humans are three problems we need to address.

www.fao.org/cfs/cfs-hlpe
This challenge can be partially offset by increased potential for improved workers’ rights and protection, and opportunities for those displaced to shift to higher-valued and more rewarding jobs outside the sector.

Here again we have the standard assumption that people are better off outside agriculture. They may well be at times and under present conditions, but if market and policy frameworks are changed, then this may no longer be the case. All of this requires proper assessment and the report should stay away from assumptions and conclusions that are not well supported by evidence. Agriculture and related trades are an essential source of jobs for the future. But the report basically assumes that livestock will mainly industrialise and intensify more and more, in spite of the clear negative implications. This report should critique such positions and present alternative visions more substantively, eg: of La Via Campesina.

This relates to the theory re smallholder agriculture that is echoed in many places, and which involves standard unspoken assumptions about development. We have seen it in many documents, repeated as inevitable; this document should examine the assumptions rather than simply repeating them. Basically the argument is that smallholders are either:

- hanging in - in the short term, most smallholders hang on in agriculture waiting for an opportunity to move out...
- stepping up - a small number of elite smallholders will step up to become larger scale commercial farmers
- stepping out - in the long term most smallholders will get out of agriculture. We cannot proceed on the basis of such assumptions, when we need fundamental changes in standard theories about agriculture and development. This report could usefully contribute to indicating where such changes could be made.

Consumers generally have a greater fear of novel technologies used in ASF value chains than most experts consider warranted by the actual health risk. These technologies include chemicals in food, genetically modified organisms (GMOs), antimicrobial residues and irradiation for food preservation. For example, 88 percent of scientists in the United States of America agree that GMOs are safe to eat,
but this position is only shared by 37 percent of the general public (Pew Commission Report on Industrial Animal Agriculture, 2008). Risk perception is complex and driven only partly by factual evidence. Food technologies often involve “fear factors” or emotional characteristics that make them seem more worrisome than other risks (for example, riding a bicycle) (Slovic, 2010). These include distrust of large companies, dislike of “unnatural” processes and uncertainty over unfamiliar dangers.

This echoes standard, unsubstantiated claims plus patronising attitudes to the public, without any balancing discussion, for example, about the precautionary principle. It is surely not the place of this report to make judgments on public attitudes to GMOs that are not based on good evidence.

Also there is nothing here about the major impacts of GMO monocultures + agrotoxics for animal feed on local people. This is a huge industry and the impacts are better and better recorded by journalists and also by doctors in the regions of production (eg: Argentina)

At the same time, if labelling goes in advance of public understanding, this may have negative effects; for example, when famine-stricken countries rejected offers of maize because it could not be certified free of genetic modification or consumers ended up with fewer choices after GMO labelling because retailers preferred to eliminate biotechnology foods

This again is somewhat patronising and not accurate. It mentions nothing about the availability of non GMO maize from other parts of the same region at that time and the need for internal infrastructure to be able to move local food easily from place to place, rather than importing GMO products from the USA. All these issues were raised by the refusal of countries like Zambia to accept GMO dumping in the guise of famine relief.

The concept of ‘consumer choice’ is also used to assert that we need GM food in order to provide ‘choice’ to consumers, even though this concept of choice is ambiguous and open to manipulation. The issue of co-existence and the many cases of contamination (eg: Canada’s organic canola growers and organic soybean producers in the US) alone demonstrates that GM and non GM crops cannot co-exist in the same region, because contamination is almost impossible to prevent.
The report could fill a real gap: examine whether it really is possible – and if so, how - for truly independent smallholder agriculture to co-exist alongside large-scale industrial livestock systems, with all their market power, monopoly and externalised impacts, and if not, what changes are required to enable the vital diversity of livelihoods and livestock breeds to survive and to flourish around the world.

*Under economic challenges (page 65) the line:*

Open new channels to integrate small farmers into domestic and global food supply chains

*This is worrying because there is currently a major push for smallholders to be reduced to outgrowers of feed and livestock for large conglomerates. This seems to be the intention of eg: the African Agricultural Growth Corridors of Tanzania and Mozambique:*

Central to the development of the corridors concept are roads, railways, ports, irrigation, and farming hubs, nucleus farms or irrigated farm blocks. According to the theory, these nucleus farms will provide processing and storage services, inputs (seed, fertilisers and pesticides) plus machinery to smallholders or outgrowers and their communities living in the surrounding area.


*Page 66 Health and animal welfare challenges*

There is NO mention here of increasing contact between producers and consumers, so that consumers learn more about the issues faced by producers and can alter their consumption patterns for the greater good.

*The Global Agenda for Sustainable Livestock (line 8, page 68)*

This seems to involve a number of multinational players and little genuine representation of small farmers.

*Page 71*

Box 11 on pastoralists is useful but makes NO MENTION of grazing/land rights. However, aspects of this paragraph could also be applied to other small farming systems:

The region is characterized by the variability in rainfall, and uncertainties related to the spatial and temporal distribution of water resources and pasture for animals. Some experts believe that pastoralists will be the first to feel the effects of climate change, while others consider
that, since pastoralism is an adaptation to climate change, pastoralists will be among the best equipped to deal with such a threat. The challenge of climate change seems insignificant to many pastoralists who are faced with extreme political, social and economic marginalization: relax these constraints and pastoral adaptive strategies might enable pastoralists to manage climate change better than many other rural inhabitants.

The vulnerability that is associated with climate change in some pastoral environments has its roots in the restriction of tried and tested pastoral coping strategies, including the ability to move through different territories, to access critical livelihood resources, to trade across borders, to benefit from appropriate investments, and to participate in relevant policy decision-making. As is so often the case in developing regions, the main concern for pastoralists is the accessibility, rather than the availability or variability, of resources.

Page 82:

...while acknowledging that large-scale, intensive production will still be necessary to meet food availability requirements.

Is this actually the case? Please examine this statement and provide supporting proof or leave it out. Also how can small farmer mixed livestock and crop production systems survive alongside such large-scale intensive production.

100. Douglas R Brown, World Vision International, Canada

SAD for FSN including the Role of Livestock – Comments from World Vision International

Dear Members of the HLPE Project Team and Steering Committee,

I’d like to take this opportunity to share some feedback on the zero draft of the Report: Sustainable agricultural development for food security and nutrition, including the role of livestock. They are based on my own reading of the document as well as two colleagues, Rob Kelly, Senior Advisor Partnership Operations, World Vision Australia and Victoria Machakaire, Agriculture and Food Security Technical Specialist, World Vision International.

For the most part, this is a very thorough and balanced high-level report that recognizes the holistic nature of the challenges to SADL and therefore the need for multi-sectoral pathways/approaches to ensuring SADL. It also acknowledges that no one-size approach will fit all and that there is a need to contextualize accordingly using a systems-thinking approach.

It is important, however, to mention that the report is too long. While it is a good source of reference material, the final report should be pared down to a smaller and more succinct version for the benefit of busy audiences (such as policy makers) that do not have time to read voluminous documents. In spite of this, there are also significant gaps in the report. We share some general remarks in response to the 12 guiding questions, followed by some more general comments on various themes and then more specific comments related to the document itself.
Responses to the 12 guiding questions:

1. The report puts too much emphasis on the livestock sector and could be better balanced. In addition, there really is no discussion of horticultural crops and limited discussion of the linkages between crops, livestock and the role of trees in the landscape.

2. The structure of the report around context, trends, challenges and pathways is interesting, but it means that some of the topics are too broken up. Secondly there is need to do the analysis by some of the contexts as there will be considerable variation between contexts – as well as between developed and developing countries. The impacts and challenges differ as do the solutions and so there needs to be some differentiation.

3. In discussing the policy responses, there is little discussion of the differences between the different classifications and categories.

4. None come to mind right now.

5. Yes, there are other challenges and opportunities. Please see the comments which follow.

6. The decision-making approach proposed in chapter 4 is not clear. Why not use something along the lines of what FAO has developed in their CSA Sourcebook together with an agroecological approach in some combination?

7. The case studies only relate to livestock and are not particularly helpful in my opinion.

8. The social dimension discussion is good to see and very important.

9. No comment.

10. No comment.

11. No comment.

12. Yes, there are major gaps and areas that are underrepresented in relation to their importance. Please see the comments which follow.

General comments

13. Gender equality: Although gender inequality is mentioned as a challenge in the report, the discussion is focused on the usual issues of access to knowledge and assets and does not quite provide depth regarding the roles of women and men in ensuring FSN. The discussion is good, but could be more nuanced as the reality is that there are various combinations of roles and responsibilities among men and women in smallholder farming households. The Women’s Empowerment in Agriculture Index (WEAI) has been known for a while and its use is growing. It would be helpful to reference this work as well as, for example, the work of
IFPRI’s Gender, Agriculture, and Assets Project (http://gaap.ifpri.info/). What learning is coming from the measurement of the WEAI (http://www.ifpri.org/topic/weai-resource-center)? What knowledge exists regarding social and economic roles of women and men in SAD at the household, community and national levels? To what extent do women make FSN decisions at all those levels? What is their status and role in decision making processes? What are the opportunities for working with women to achieve SADL? Which demographics are more critical and why? How will they be affected by changes in the agriculture sector, what are the trade-offs and wins associated with such changes?

14. **Nutrition**: The N in FSN does not seem adequately queried. The report addresses access, availability and stability but does not seem to dwell much on the utilization aspect of FSN. Some reflection and evidence on the current nutritional status, knowledge gaps and projections could be useful, case studies too. In addition, an exploration of useful interconnections/partnerships and the role of building the knowledge base in promoting SAD would be useful as well. Pathways could include a focus on education curricula in school systems, focus on women’s or men’s organizations, producer groups etc. What are the roles of men and women in ensuring adequate nutrition? Unless nutrition is properly understood, “hidden hunger” may continue to menace generations and any SADL efforts may not contribute towards FSN. On the other hand, it may be that a discussion of nutrition at this depth is beyond the scope of this report. If this is the case then it is important to clearly state (1) the importance of nutrition as an outcome of sustainable agricultural development and (2) that it is beyond the scope of this report to go into that much depth and point the reader elsewhere. The current goings-on around bio-fortification are so significant that I think they warrant particular mention in this report. This technology has or is moving towards getting a fair share of the pie on the agric development marketplace and should be considered when discussing SADL. While to use of biofortified staple food crops does not in and of itself have an impact on the sustainability of the agricultural system (since they can be grown in sustainable or unsustainable ways), they are important for micronutrient nutrition in settings where people struggle to get adequate dietary diversity – and the biofortified varieties are locally-adapted, bred using conventionally breeding practices and at least as high yielding as other improved varieties that are available.

15. **The role of traditional crops, plants and animals in FSN**: This subject remained silent in the report. It is an area that deserves elevation and recognition for its contribution towards the FSN of millions. It is important to note that many communities suffer inevitable food gaps even under normal seasonal conditions and it is the traditional crops, plants and animals that fill in those gaps, fresh or processed. They provide a critical safety net in terms of both food and income from the sales of harvested products. In addition to being used as complementary foods, they have other critical uses including as weaning foods (implying that they have superior nutritional values hence make significant contribution to the N in FSN), medicinal, industrial raw materials, environmental/ecosystem protection etc. They too, need to be sustainably exploited and conserved. Due to unsustainable farming systems that have resulted in widespread environmental degradation across the globe, many species have
either disappeared from their environments or are on the verge of becoming extinct. They have a role to play in SADL and should be explored, and their contribution to nutrition intentionally measured. In my opinion, it is misleading to discuss SADL outside the context of traditional crops, plants and animals.

16. **Climate change:** Although mentioned in the report, the rigor around climate change could be strengthened. The language around climate smart agriculture, resilience and DRR could be improved. FAO, in particular, has done a lot of work on this and we would have expected reference to be made to it – especially the CSA Sourcebook221 and related documents produced by FAO, CCAFS and others. It is now known that the aforementioned are critical if not prerequisites for sustainable agriculture systems hence deserve more extensive reference. There is also an important discussion of agricultural efficiency. The role of partnerships should also be investigated – along with some discussion of agroecology.222

17. **Genetic diversity:** This draft of the report is largely silent on the issue of genetic diversity and the importance it plays in adaptation and sustainability. There is some mention of this in relation to livestock breeding as well as some discussion of GMOs in relation to consumers and ethical issues. However, that is insufficient in our opinion. We are not expecting the report to necessarily take a stand on the issue of GMOs per se, but we would expect the report to outline the issues from a sustainability perspective. We know this is a thorny issue to discuss at any level and perhaps that’s why the report has been “carefully silent” about it, but reality is that GMOs are fast encroaching farmland. We all know what is happening in Africa and elsewhere and unless that conversation is objectively entered into, agriculture development may very well be a marketplace where disorder is the order of the day. I think the report should at the very least acknowledge the presence of GMOs and try to speak to their role in SADL. I think the treatment of genetic diversity in the FAO CSA Sourcebook (mentioned previously) would serve as a model of how to approach it here.

18. **Fragile and other operational contexts:** It appears the report is written with the assumption of stable operational environments. The current global scenario delineates a few common contexts – stable, fragile, transitional, rural and perhaps urban. I wonder how the report

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221 The complete sourcebook can be downloaded as a PDF (http://www.fao.org/docrep/018/i3325e/i3325e.pdf) or read on line (http://www.fao.org/climate-smart-agriculture/72611/en/).

would have read if it was context based. What lessons have been learnt in places like Somalia, DRC, South Sudan and others where some level of agriculture development including livestock continues despite the ensuing troubles? To what extent are the improved natural resource management practices that are foundational to more productive and resilient agricultural livelihood strategies also contributing to reductions in the level of “fragility” in these “really hard places”? Good agricultural development can have a positive impact on social capital and networks and facilitate the positive steps that are needed for improved governance at local and regional levels. The prevailing regional and national insecurities will likely persist for some time, hence the need to learn from current experiences and inform future programing. Urbanization and migration are reportedly at an all-time high, and under nutrition and malnutrition are inevitable consequences. Therefore, what form or shape should SADL take? What are the possible recommendations for global policies? Where there are large movements of youth from rural to peri-urban and urban areas is this because of economic opportunity or necessity? To what extent can sustainable agricultural development in rural and peri-urban areas provide local economic opportunity for youth and mitigate the need to flee to urban areas because of economic destitution?

19. **Theory of Change**: What is the proposed theory of change for SADL and how should it be measured?

20. **HIV and AIDS and other chronic diseases**: This infection and disease has deprived many countries of the productive population and the agriculture industry has been severely affected. What knowledge exists regarding the impacts of the infection and disease on the labour force in agriculture and what innovations are showing promising results? What is the potential impact of promoting SADL in nations that are labour weary due to disease.

21. **Good governance**: the report cites studies that revealed that global availability of food is not the biggest problem but distribution. This is a situation that derives, in most cases, from poor governance at all levels. Indeed, governance continues to fail in many countries especially those where the most vulnerable reside. If SADL is to succeed, there is need for strong recommendations for good governance, political will and commitment to make it so at all levels.

22. **Reliability and resilience**: While there is certainly reference to the importance of sustainability in all three dimensions in relation to agricultural production, there seems to be an implicit assumption that improving productivity is the first priority. It is important to make a distinction between yield and the reliability of that yield because there are, in many cases, trade-offs between mean agricultural production and the variability of production around that mean. We talk about a “yield gap”, but it might also be helpful to talk about a “reliability gap”. Similarly, there is a lot of discussion of sustainability but little mention of resilience. While the terms are not unrelated, resilient agricultural production adds a dimension that is not entirely there when the sole focus is on sustainability – a dimension that has economic, social and environmental implications, especially for small holder farming households.
23. **Crop residues, fuelwood and fodder:** The document places little emphasis on the linkages between crop production and livestock and the role of woody vegetation in the landscape (agroforestry and related practices). This is an important gap. Where fodder is lacking, livestock often rely on crop residues for feed and households often use them for fuelwood – both of which are at the expense of maintaining soil organic matter content, which has downstream implications for soil water holding capacity and infiltration rates. Woody vegetation in the landscape helps to address these issues and facilitate retention of crop residues in the landscape. These sorts of synergies are not discussed in this document and yet have important implications for social, economic and environmental sustainability and resilience.

24. **Certification schemes:** There is an increasing demand or scope for external certification schemes, which have the potential to add value to both crop and animal products. In addition there are various fair trade or Halal/kosher-type certifications that may be relevant for entry into particular markets – such as the euro zone. Global trade in animal products (as well as plant products) may increasingly lead to certification opportunities for small holder farmers and it would be relevant to discuss them.

25. **Production for food versus biofuels:** While there is some mention of the debate between production of food for animals (and people) versus production for biofuels, there could be more discussion. It would be helpful if the report could indicate why there is such uncertainty around this – not only with respect to future energy requirements but also in relation to domestic policies such as those in developed countries like Europe or the US.

26. **Feed and crop storage:** Storage of food crops could be discussed in further depth. From the perspective of livestock, techniques for feed storage, including silage production, are not elaborated well. These could be important as a way for production systems to take advantage of varying rain patterns, address climate change, or insure constant/more reliable production (though greenhouse gas emissions may need to be considered too).

27. **Agro-silvo-pastoral systems:** Integrating trees, grasses, and livestock is not well articulated. Incorporating trees into the agricultural landscape (both field and horticultural crops as well as livestock) can have positive knock on effects for animal production (as well as crop production), especially in protecting against drought and preventing soil erosion. It would be helpful to elaborate on this more in the next draft.

**Specific comments**

1. **Scale of production:** there seems to be an implied assumption that the trend to future production of livestock and feed on large-scale specialized farms is (1) necessary, (2) good and (3) cannot be changed (page 8, line 17). While this paragraph recognizes the need to manage production systems such that they are suited to agro ecological conditions, there is little discussion of (1) exactly what that means and (2) how that would be done. It should be noted that economic and environmental policy can serve as a guiding hand so that the
outcome of individual decisions is shaped towards a sustainable, resilient, climate smart, agro-ecologically sound and locally adapted model of production.

2. Resilience and food security: This aspect of the discussion of sustainable agricultural production seems to be missing. I would draw your attention to the John Hoddinott chapter in a recent IFPRI publication 223.

3. Productivity and reliable production: On page 9, line 30 there is mention that a “fundamental requirement” to address the challenge of sustainability is that “productivity must grow”. These ideas appear elsewhere, such as on page 13, line 49-50; page 14, line 20-30; page 15, line 46-48 and so on. When productivity is mentioned, there is often reference to ensuring that we have a “sustainability perspective”. This is important, but what about a “resilience perspective”? The two are not synonymous. Similarly, there is mention of a “yield gap”, but what about the “reliability gap”. For small holder and or semi-subsistence farmers, a reliable production system is perhaps as or more important than the potential of a significantly higher production in any one year (because there is also perhaps a heightened risk of extremely low production – also known as crop failure leading to hunger and its serious consequences for well-being).

While it is important to consider productivity, there is a need to change the language of the “productivity” discourse as it allows people to fall back into a “yield maximization” way of thinking and a focus on short term, technological (high input) solutions that are often not more reliable in the short run, nor more resilient and sustainable in the longer term. We want sustainable and reliable agricultural production as a starting point – and production increases will then be forthcoming as well. Such an approach would change the focus to “taking care of the land” so that it can produce – something that is more in line with the “Save and Grow” approach that FAO developed as well as the ideas that underlie both CSA and agroecology 224.

4. Systems approach: page 10, line 25 – this language is welcome


224 On a side note, if we solve some of the problems of wastage / spoilage (Rockefeller estimate 30% of food produced in developing countries is wasted or spoiled – see https://www.rockefellerfoundation.org/app/uploads/Waste-and-Spoilage-in-the-Food-Chain.pdf), we may end up with more food available for consumption, and hence less pressure to produce more. Could this report test this hypothesis? Maybe this is all that is needed after all.
5. **Consequences of past decisions**: page 12, line 38-40 – this is an important point because problems introduced by a narrow focus on “productivity increasing” technology have been at the expense of caring for the land with consequences for agricultural landscapes in terms of soil degradation, increased vulnerability to variations in climate and less reliable production. Smallholders need reliable and improved production and not one at the expense of the other.

6. **Price volatility**: page 15, line 1 – this is aggravated by volatile production or yields. More reliable smallholder production (crops and livestock) would serve as a mitigating factor where price volatility is a concern.

7. **“Yield gap” or a “reliability gap”**: page 15, lines 46-48 and 55-57 – while the yield gap is important, we should also think about the reliability gap. Reducing the variation around the mean is as or more important than increasing the mean itself. This is because the mean yield itself is almost never realized – but something above or below the mean. This downside risk is a real problem for smallholder farmers living close to the margin and a focus on reducing variability (improving reliability) would go a long way to helping farmers adopt more sustainable and reliable and productive agricultural practices.

Related to this, when we talk about production we almost invariably talk about yield per hectare. However is the most important denominator land area or labour? For many smallholders, labour may be the most limiting factor to production and therefore yield per unit of labour is probably more relevant than yield per hectare. It might be helpful to mention this as an important consideration.

8. **Nutrition**: it would be helpful to reference the guidelines on improving agriculture-nutrition linkages developed as part of an FAO effort and involving the Ag2Nut CoP.

9. **Consumption smoothing**: there is mention of livestock as a store of capital for the purpose of consumption smoothing. This is useful, but so are savings, which could also be mentioned.

10. **Sustainable intensification**: page 18, box 2 – for the most part, this is good, but it is a bit weak. There could be mention that we seek to not only improve yield but also the reliability of yields.

11. **Food sovereignty**: page 20, box 3 – in terms of resolving the debate, this would be more likely if people acknowledge the legitimacy of the other’s concerns and actually sat down and

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communicated on the subject. I believe the varying perspectives on the subject have more in common than the rhetoric would lead one to believe.

12. **Comments to figure 1 page 22** – this diagram was not particularly helpful

   - I suggest including some critical “Enablers” such as Gender dynamics (very critical to HH+ FSN), farmers’ organizational structures, policies and markets.

   - Another suggestion is to create a “Threats” group which should include Climate change (already in the framework), instability (civil and international wars, ref- East and Central Africa and Middle East experiences), and migration (whose effects are borne by the migrants and host communities and impacts on nutrition can very quickly manifest).

13. **Projections and scenarios**: it would be helpful to make reference to IFPRI’s modelling work as there is a lot relevant to what is discussed here. In particular, the book entitled “Food Security in a world of natural resource scarcity“ is relevant. Note that, of the practices that exist now, those which manage soil, water and crop residues contribute the most to food security.

14. **Constellations and categories**: While I am not sure I buy into this grouping, I appreciate the desire to avoid a reductionist approach as mentioned on page 33, line 53.

15. **Concluding comments on page 43**: On line 16-20 – the speed of these developments will also depend on the policy environment and how it is constructed to shape decisions.

   On line 41-43 – while intensive, specialized systems will play their part, insufficient attention has been given to the environmental, social and economic consequences of them – for example the US livestock sector and the downstream pollutant effects in the Mississippi River.

   On line 43-45 – I appreciate this conclusion.

   On lines 51-52 – more discussion of this is needed.

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16. **Challenges versus trends and drivers:** I don’t find it helpful treating the trends and drivers so separately from the challenges. As I read the descriptive part, I kept thinking “but what about...?” – only to find it in the next section. There is a need to connect them better so that the reader is not left thinking that the writer is overlooking serious problems in the earlier section on trends and drivers.

17. **Sustainability challenges:** I appreciate the clear articulation of social sustainability challenges. These are very important and often overlooked. The discussion would be helped with some mention of the impact of formal and informal institutions and local governance arrangements on decision-making and the potential for sustainability at the household and community levels. The discussion on wages is helpful, but there are problems with low wages on both small and large scale farms and there is a need for living wages for those who rely on agricultural labour as their primary source of income. With respect to gender, as mentioned earlier, the discussion is good but could be more nuanced. I appreciate the discussion of the need for viable rural communities and this is an important point for both developed and developing countries.

18. **Efficiency and yield gaps:** I think this is an important discussion, but we should not assume that the yield gap is always and only due to lack of use of purchased inputs or due to plant genetics. The yield gap is often, and perhaps more importantly, a function of soil and water conservation practices and the impact that inappropriate practices have on soil quality and water holding capacity, for example. This aspect of the yield gap (and more importantly the reliability gap) is lacking in the discussion. In my earlier comments, I mentioned FAO’s CSA Sourcebook and I think its discussion of efficiency would be valuable here.

I appreciate the mention of stability on page 49, line 2 and the mention of the challenges presented by decoupling of livestock from the local ecosystem on line 5.

In the discussion of market performance on page 49, what about the relative prices of grains and pulses (as well as fruits and vegetables) and the impact that this has on the purchasing and production decisions of poor households?

On page 50, line 18-23 – this is true, but there are also other factors that come into play. For example, production variability aggravates this. Secondly, market power (price takers) and the timing of sales (due to economic necessity) negatively impact the ability of smallholders to manage the marketing of their production. In lines 31-34, it is important to note that farmers have the ability to organize in some form of co-op or marketing association for the purposes of marketing and this can help them towards more sustainable systems.

19. **Land:** page 52, line 19-21 – in these extensive systems, are all impacts being included? Is there a comparison being made to a grassland system with wildlife instead of livestock? With respect to lines 30-36, there is mention of land degradation. Where is there discussion regarding soil and water conservation and agroforestry practices (especially systems of...
natural regeneration like Farmer Managed Natural Regeneration (FMNR) of trees227) that can help to reverse this? I would’ve expected to touch on this as one of the things to be done in order to improve sustainability and resilience.

20. Water: page 54, line 1-6 – it appears that the writer is talking about irrigated production of livestock feed. How common is this apart from in the US Midwest where water is undervalued (with perverse consequences for water use)? How does usage compare between developed and developing countries with respect to irrigation?

Here and elsewhere it would be helpful to know how these differ by region and by production system. For the most part everything is lumped together in the discussions and very little distinction is made between geographical areas, stage of development or type of farming system.

On line 16-18, the authors make a good point regarding the efficiency of grazing or mixed systems – this is a good reason to value pastoralism and pasture-based systems.

On line 20, reference is made to the rapid growth of industrial farms near cities in LDCs. However, it seems to me that there are considerable problems in developed countries as well. Some mention is made on page 55, lines 1-5, but much more could be said in terms of developed country examples. The Mississippi drainage basin and its water quality come to mind – as do nitrates in groundwater in the Netherlands or problems with potato production in Prince Edward Island, Canada. In parts of Australia the issue is the increasing competition for water between producers (perceived to be inefficient) and urban centres.

21. Climate change: page 55, lines 11-15 – only the impact on the quality and quantity of feed together with heat stress are mentioned here (as well as some mention of drought and flood). However, what about increasing variability (temporal and spatial distribution) of precipitation? Later on in this section, there is a list of main messages. However, missing from this is any mention that appropriate management of agricultural landscapes can reverse existing landscape degradation and result in the improvement of soil water holding capacity and other aspects of both pastures and field crops. Agroforestry practices, including Farmer Managed Natural Regeneration (FMNR), Soil and Water Conservation practices, Conservation Agriculture and so on have resilience building and sustainability improving benefits in addition to those related to social and economic dimensions. Included in this would also be silvo-pastoral systems and integrated, mixed mosaics that take account of


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contextual landscape variations rather than concentrated, broad-scale, intense systems of land use.

22. **Main challenges:** With respect to Table 1, I don’t find this challenge matrix especially helpful and there are several gaps. In addition to this, it only seems to focus on livestock and yet I thought this report was for both crop and livestock systems. See also page 60, line 10-11. While the statement on “global conclusions” on line 10 is probably true, it should be possible to derive some globally-relevant principles about crop and livestock systems.

23. **Pathway:** page 61, line 34 – the language here reverts back to productivity (“requires an increase in productivity”), which is the wrong emphasis for the most part. We need to get reliable productivity. On the other hand, lines 40-43 are excellent on page 62. In lines 13-19 again the focus is on improving yield as measured per hectare and not yield per unit of labour and not on the reliability of that production system. There is research to show that some of these technologies that are “massively underutilized” can, in fact, increased vulnerability for smallholder farmers. Additionally, the method by which they are introduced can increase or reduce the likelihood of adoption.

On the other hand, there are number of sustainability and resilience building soil and water conservation and agroforestry practices which are not as widely adopted as they might be though they are well tested. Careful consideration needs to be given to how best to promote the adoption of them by identifying the constraints to adoption and helping farmers overcome them.

In the discussion on lines 29-31 of page 62, it would seem relevant to make reference to FAO’s work on CSA. I also wonder why on line 47, only workers in the livestock sector are mentioned. And again, on line 48, it would be appropriate to mention not only yield but reliability of the yield and, on line 51-52, to mention resilience and adaptation.

24. **Possible pathways:** page 63, line 7-17 – I wonder why these are presented as separate pathways. We need concurrent progress on all three dimensions. To do the economic dimension well, one needs to do the other two well and vice versa. In my opinion, the three dimensions should not be seen as separate pathways but rather, these are different pathways, each of which have differing economic, social and environmental aspects to them.

25. **List of key issues/choices:** page 64, lines 1-20 – I don’t think it is helpful to present this list as a series of dichotomous choices. They need not be seen as either/or. The points made on line 29 and 33 are important and need to be highlighted for readers.

228 Large-scale commercial farms tend to be more homogeneous, and less able to adapt according to the landscape variations.
26. **Responses**: page 64, line 44 – “reverting back to non-sustainable practices”. Not all practices are sustainable now. The point here is that much “industrial agriculture” is unsustainable now. Much smallholder agriculture is also unsustainable but for different reasons. Change is needed to both of them – and urgently. With respect to line 52, where the lack of financial remuneration for sequestering carbon in soils (a public good) is given as a reason for not adoption of certain practices, it is important to note that more carbon in the landscape (both in the soil and above ground) is better for farmers in most cases (from the point of sustainability and resilience to shocks). There are environmental and social benefits from the more reliable and sustainable production systems that result as well as reduced risk of crop failure and so on.

27. **Trade-offs or synergies**: the work by Harvey et al. would be worth mentioning here. With respect to the boxes on page 68 and following, I wonder why the only examples are related to livestock production. It seems to me that we need a broader basis for discussion of examples of sustainable production systems and their impact on food security and nutrition.

28. **Intensification**: on page 82, line 20 the discussion on intensification needs further elaboration here. It seems to me that we need to be clear what sort of intensification the authors have in mind. Are we talking about sustainable intensification as opposed to extensification – or unsustainable intensification? Or intensification that is more like industrialization?

Finally, to conclude, we are grateful for the opportunity to comment on this draft document. Admittedly, it is a work in progress, but we trust that our comments will assist in its improvement.

All the best,

Douglas R. Brown, Director, Agriculture and Food Security, World Vision International

101. Marilia Rangel Campos, International Poultry Council

**COMMENTS FROM THE INTERNATIONAL POULTRY COUNCIL - IPC**

**CFS-HLPE DRAFT V0**

**Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock**

Overall comments:
The International Poultry Council appreciates the recognition of the role of livestock for sustainable food provision and availability globally. As this is the first time this is done so detailed, the poultry sector has remarks and contributions on important and crucial 'details'. The indications in bold are to be added to the report. The indications in green are remarks/suggestions. When we assume, and expect, that the move from countryside to urban areas will continue, and less people will need to provide the world with food, they will need to provide more food per person. On top of that, more food must be produced, certainly also animal based food. Therefore we consider that the description of the 4 categories of livestock keepers in not very helpful or REALISTIC in achieving sustainable solutions of food production in which farmers can and should become responsible, respected and appreciated providers of food for the globally growing urban populations.

A chapter on the crucial role of infrastructures is missing. It is crucial that countries and regions make roads, water ways, rail roads and other tailor made efficient, quality transport means available for everybody. Producers must be able to transport their produce to cities or further away, and able to get new equipment and other means to their often remote production areas via high quality, convenient roads without obstacles. It is the task of governments to provide these - this is the best way to ensure that small producers and poor regions will get an opportunity to work themselves out of poverty. Without that it is not possible. Equally important are schools for all, agricultural education at all levels, working supporting institutions, banking and loaning opportunities for all at rates and conditions comparable with those in developed countries.

Specific comments:

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<td>supply chains is on the one hand providing opportunities, in particular for poorer areas (see example of poultry sector, on the LEAP poultry report), but also increasing...</td>
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13. Some of these issues can be seen as 'by-products' on the road of development, but they deserve to be mentioned. Highlighting them has hopefully a positive, exemplifying effect on other producers to act more prudently.

13. Delete 'A related risk to human health of growing concern is'. Although the use of medicines in human is the major source of antimicrobial resistance, it is important to recognize the role of the use of antibiotics in farmed animals.

13. developed countries and led to rapid decrease in antibiotics usage, but remain...

13. markets. In addition, a related problem has come up, i.e. in some countries retailers tend to go for 'antibiotics free food' bringing responsible veterinarians in conflict with their oath to treat animals when they are ill, and to decrease of animal welfare of sick animals loosing the right of treatment against disease. New and...

13. eradication. In particular, the increased risk of outside farming of poultry has already led to cases of LPAI developing into HPAI (e.g. in 2015 in UK). Hiemstra and Ten Napel (2013) have highlighted the risk of re-emerging diseases related to outside farming of poultry. Greater...

14. The UN (2012) projects that by 2050, two-thirds of the global population will live in cities and the rural population will be 8% smaller than in 2010. Because “cities seldom contribute to the production of their food ... generally, they simply consume it” (Ghirotti, 1999), fewer rural people will then be producing more food for many more urban people. This again means that productivity will have to increase. The logistics of that urban food chain will likely favor intensive production systems (sustainable intensification: Foresight, 2011) close to cities, which in turn raises demands with regard to their environmental impact, which calls for improvement of animal environmental efficiency. Lukefahr and Preston (1999) state that intensive animal production systems cannot be regarded as a realistic means of providing food security to the rural poor. Providing food security to the (very large) urban world population is quite another issue.’(Neeteson, Knap and Avendaño, 2013). Neeteson, Knap and Avendaño (2013) believe that technologically developed animal production, and the associated breeding sector, have a very important role to play here. (Neeteson, A.-M., Knap, P., Avendaño, S. 2013. The role of sustainable commercial pig and poultry breeding for food security. Animal Frontiers Vol. 3, No. 1. 52-57.)
As indicated in Box 3, the importance of food sovereignty must not be underestimated. This is important for both developed and developing economies. Whereas in 2050, the available amount of agricultural land per person in Africa is estimated to be below that of Europe, and slightly higher than that of Asia, it is clear that for Africa, but also for Europe and Asia the importance of food sovereignty and maintenance of the main types agricultural and livestock production can not be underestimated. 'In 2050, Europe, although with little change in land per person, will probably have less opportunity to import both food and feed, or have to pay high prices. Therefore, the future of poultry production in Europe will be even more dependent on knowledge and skills to manage poultry in the short and medium term, and on development of efficient European protein-containing crops that poultry can digest well, as in the long term'... Europe...'will probably have to become more self-sufficient in European produce'. (Neeteson, Appleby and Hogarth, 2015). (Neeteson, A.-M., Appleby, M.C., Hogarth, G. 2015. Making a resilient poultry industry in Europe. In: ....)

including local commercial players in developing economies, private philanthropists,...

centration, development and intensification...

TRENDS AND DRIVERS

of production (and, assuming they would not adapt and improve which seems rather unlikely, the 'Western...

smallholders and providing them with future outlooks which go beyond being poor and dependent, but becoming important, productive and powerful food providers of the future while more consumers move to urban areas (see poultry example, LEAP poultry, however this is not limited to one species). Second,...

will require on the one hand more grain...

take), but on the other hand due to improvements in management skills of farmers and in feed conversion rate of animals the additional requirements will be less than linear.

local food', (perceived) quality, ...

range, the diverse industrialised farm systems, with strong connections...

at the other end, various multipurpose production systems.

Line 2 and 3: now the text is not judgmental anymore, and more trueful by smallholders and larger owners applying e.g. silvo-pastoralism

Please delete 'according to a combination of market and non-market needs and pressures, with intensive use of natural resources locally available'. Or apply to both types of systems - we disagree that this absolute distinction can be made.

The description on pages 34, 35 is then somewhat less judgmental...?

enormous challenges in and opportunities for many countries,...
Also, while extra costs for improving quality and additional attributes to livestock production are mostly incurred up to and including the farm level, at the primary level little extra value is generated: that is mostly generated at the processing level (Plakké et al., 2008) and later. In some countries there is now a call for a better sharing of added value over the production chain. Plakké, T., Duijghuijsen, R. and Leenstra, F. (2008) Toekomstvisie pluimveehouderij 2015-2020. Stichting Fonds voor Pluimveebelangen, Zoetermeer, The Netherlands.

Delete the footnote. The fat content of chicken carcases is not as stated, neither has it changed significantly over the years. The fat content of chicken meat remains lower than the fat content of the meat of other livestock species.

The paragraph conflates and confuses pig and poultry production and consumption with practices in other, mostly non-livestock, food production and consumption. They are separate issues.

Facilities) and many intermediate forms of systems. Each of

land use, including deforestation, improvements of land use care, and improvements of sustainability of the systems.

by increased professional knowledge, scientific...

reduction - it is important to consider their role in a positive and flexible way, with the possibilities to move beyond 'a system' or 'size'.

3. CHALLENGES TO ACHIEVING SUSTAINABLE AGRICULTURAL DEVELOPMENT THAT HELPS MEET FOOD AND NUTRITION OBJECTIVES

CHALLENGES AND OPPORTUNITIES TO ...

Delete 'the' : ... challenged by undesired social, environmental and economic...

consumption, while successful achievements and new developments provide promising examples and roads for opportunities.

change 'these' into 'the'

We disagree with the statement that unwanted effects are worse in animal production - this is merely an opinion.

livestock sector, as so far less attention has been given to the livestock sector and attention has mainly focused on challenges (such as GHG emissions or pollution) - so as to provide roads to capture, extend and implement the opportunities which will be different in the various species, cultures and regions. Delete 'as many unwanted effects or negative externalities' and 'are more pronounced in livestock than crop production'.

challenges and opportunities ... Certainly animal welfare is an opportunity, not a challenge

replace 'challenges' by 'items', replace 'the' as in 'the poor working..' by 'any'

replace 'fostering liveable' by 'improving the liveability and viability of'

values and food security.
replace 'challenges' by 'opportunities'. Certainly these must be and become opportunities for all involved - it is key to make agriculture work, but also to provide a perspective for agriculture, as it is key for the viability of the countryside and its inhabitants as well as for global food security that food production is seen as a great job and life option - not something for the ones left behind, no: a crucial role and fulfillment for those who choose to work with animals and food production. This needs respect. This needs to be attractive. As such it is important that it is pictured and described as such. Working with animals IS great. We want the best people to work with animals with pride and responsibility.

challenges and opportunities are change and improving the environmental footprint per kg animal product.
challenges and opportunities, unique.
emerging and re-emerging disease, development of diseases from low to high risk (e.g. low to high path AI), and occupational...
delete 'achieving animal' .... and welfare of animals. Explanation: For us, although we consider perception of welfare to be important as well, welfare of the animals i.e. welfare as it can be perceived by animals, is key.
threats to and opportunities for the...
sustainability and development of these systems and identifying the 'hotspots', limits, stresses, risk and tipping points and more important the roads for improvement and development towards various animal production models - including options going beyond the four traditional typologies described.
challenges and opportunities coming from inside and outside the agriculture sector that food production systems need to take account of, while continuing to mitigate the internal challenges and taking up new avenues so as to provide the food producers on the countryside with liveable, sustainable options for the future.
challenges and opportunities
2013). However, it is important to realise that by 2050 there will be less people at the countryside to work in food production, and the amount of agricultural land per person in Africa will be less than the amount available in Europe (or one of the Americas, FAO data, e.g. Neeteson, Appleby and Hogarth, 2015). This means that agriculture will need to become much more productive and that less people must produce more food per person.
The paragraphs 3.1, 3.2 and 3.3 are written in a defensive way, challenge driven. We advise there will be equal space to opportunities and achievements. For the livestock sector it is important that, of course, improvements are made, but as importantly, that opportunities are pictured in an equally balanced way. For people working in animal agriculture will be able to do better jobs if they are respected - then they will be able to work with animals in a proud, positive, caring and responsible way. They will also try to do so when they are not respected, when there is emphasis on problems, when
their image is bad - but it will be much more difficult and not really fair.

Please find below a few examples of what is missing...

47 39,40 For instance, the positive role of poultry in the remote areas in Europe are example of how the scaling up of agriculture has a positive effect on animal health, welfare, viability and job availability of regions.

48 3 evidence. It is important that evaluations include both benefit and risk perception.

48 5 dangers. The question is how fair this is for animal food producers.

48 17 control. Also, the improvement of animal production systems, animal management practices and animal feed and breeding improvements have played an important role.

49 2 resilience. When and where that is the case it is worth studying how sustainable viable improvements can be achieved and to learn from the many positive examples in livestock agriculture.

49 7 air); re-emergence of disease that seemed to be under control, diseases moving from low to high risk (e.g. low to high path AI), zoonotic...

49 8 rate of genetic resource preservation, development and in some cases loss, improvements and recognition of and at times also concerns over animal welfare.

49 18 conditions. At the same time this comparison will be different if this burger is compared with low environmental impact aquaculture, poultry or insect farming.

49 53 food consumption more significantly (HLPE, 2011), including immediate strong reduction of animal protein,

50 12,13, 14 The risk and volatility are related to ALL parties in animal production - risks are simply too high to prepare for financially. The relative high cost, large amounts of money involved combined with low profits and large volatility risks are common across all animal agriculture players, both small and large.

50 40 2013). Extra costs, both for legislation and for perceived welfare, are mostly incurred up to and including the farm level. However, at the primary level little extra value is generated: that is mostly generated at the processing level (Plakké et al., 2008) and later.

52 19-21 The assertions in this sentence are tenuous and not substantiated. The sentence should be deleted.

55 45 3.4 A paragraph on re-emerging diseases is missing, and a paragraph on the danger of diseases moving from low risk to high risk (e.g. L to HPAI, like the 2015 case in the UK) should be added. Improving broiler welfare through changing to free-range systems may cause certain diseases to re-emerge (Hiemstra and Ten Napel, 2013 page 13 +53).
Amend to "All food biological hazards such as..." to be clear the following statistic refer to hazards in all foods not just food of livestock origin.

"...from or through a livestock system, apart from improving biosecurity and hygiene."

It is important to address here the concerns of veterinarians that some retailers and food chains move towards 'food from animals that have not been treated with antibiotics' (contrary to no prophylactic use and shown improvements in decreasing use of ABs). This goes against the oath of veterinarians to treat animals in need of care, and is detrimental for animal welfare. The US poultry veterinarians have expressed their serious concerns in this respect.

In this paragraph it will be important to also embed the following items: 1. the 5 freedoms (FAWC) are the ideal state to strive for and the 3 essentials of stockmanship (also FAWC) are the means to come as close to this ideal state as possible 2. work and presentations of professor Marian Dawkins indicating the ways in which welfare improvements can be implemented and contribute to animal productivity at the same time.

3.5 Main challenges and opportunities by...

3.5 then needs to include also opportunities, and a text on the importance of the opportunities of people, regions and systems to move beyond the systems as they are described in this report towards systems that combine the best of the various systems.

Table 1 Overlooks several issues relating to beef production (whether Intensive or Rancher systems) and consumption. The references to Intensive poultry and pork also apply to intensive beef production systems. The reference should therefore be simply "Intensive" without specifying each of the species within Intensive.

Social-Overnutrition - should include Rancher (the ubiquitous hamburger effect, also health concerns highlighted in WHO and other reports). Emerging zoonotic disease - should include Rancher to reflect existing zoonotic risks of E.Coli, Bovine TB, Cryptosporidiosis etc. Antimicrobial resistance - should include dairy as high users of antimicrobials for mastitis control. Fear of technologies - should include Rancher in respect of use of hormonal growth promoters in cattle production.

also can contribute to...

at present and, more so, in the coming period.

delete and replace with"Many examples of success and opportunities for further progress demonstrate that several of the problems are tractable. The most pressing question is the extent to which these kinds of responses will be necessary, feasible and effective in the future."

4. TOWARDS SUSTAINABLE AGRICULTURAL DEVELOPMENT: PATHWAYS AND RESPONSES
Once the opportunities have been worked out, then also chapter 4 can be adapted to include the good examples, the opportunities and new pathways including the opportunities of future systems that will encompass the benefits of the systems currently described. Therefore, we do not yet give detailed comment on chapter 4.

...supplements and feed management, **non-till growing systems for feed crops**, grazing land ...

We think most of the choices listed are artificial constructs that are not real policy choices in the context of countries with large urban concentration of population. While some of the choices may be able to be applied to specific livestock sectors they are not appropriate, feasible, or rational across across all livestock production. In our view the Report should not present wholly unrealistic and unworkable options as policy choices.

delete reference to "...often from imported sources" Imports per se are not not the issue.

the meaning of this is unclear. Needs to be rephrased.

Delete "In some cases, " It is clear that intensification can be well managed and the rest of the sentence sets out several of the requirements for this.

what is the evidence for "lighter environmental footprint"? The environmental impact per unit of livestock output is significant higher than for intensive systems.

While the needs of this sector should be seen as fitting into a social policy, resources should not be diverted form more productive livestock food producing sectors in order to grow the markets and encourage continued use of inefficient production methods.

delete "....especially in intensive systems" Animal health and welfare risks exist in different forms in all animal production systems and all need to be addressed equally.

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**102. Pablo Frere, Pastoraméricas, Bolivia (Plurinational State of)**

Estimados/as Amigos/as

Les escribo como punto focal de la red latinoamericana de pastores y sistemas pastoriles “PASTORAMÉRICAS”, miembro de WAMIP.

Estamos enviando dos documentos con un comentario adicional:

1. Primero queremos explicitar nuestro apoyo a las observaciones y aportes realizados oportunamente por parte del grupo del Mecanismo de la Sociedad Civil (CSM)

2. **Adjuntamos un documento más técnico y con aportes específicos cuya versión hemos podido elaborar en inglés.**
3. El otro documento (Comentarios generales de Pastoraméricas) va más a aspectos conceptuales y políticos a tener en cuenta y resulta algo extenso para traducirlo en el tiempo disponible.

Quedamos atentos a sus reacciones y les saludo cordialmente

PABLO FRÈRE
COORDINACIÓN PASTORAMÉRICAS
SECRETARIO EJECUTIVO

Comentarios generales:

Comentarios generales de Pastoraméricas (red de productores pastoriles de Pastoraméricas) al HLPE Zero Draft Report sobre “Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock”

Estos comentarios de Pastoraméricas apoyan el aporte hecho por el Mecanismo de la Sociedad Civil, el cual consensúa la voz de los movimientos sociales y de cuyo mecanismo Pastoraméricas es miembro a través de WAMIP. La siguiente contribución pretende completar dicho aporte, subrayando las cuestiones específicas para pastores más importantes.

Comentarios generales al documento:

- El análisis en el borrador actual se centra desmedidamente en la ganadería industrial. En la cadena de valor de la carne encontramos cada eslabón privatizado por una empresa, cuyo principal objetivo es obtener ganancias. En este sistema si un ser humano desea satisfacer su necesidad alimentaria acceder libre y espontáneamente a esta fuente de proteínas resulta ser un robo, ese ser es un delincuente. Mientras que en nuestro sistema el libre y espontáneo acceso a la fuente de proteínas se lo llama “cazador y recolector”, donde el Humano toma el alimento necesario, de su ambiente, para satisfacer sus necesidades. Es la lógica de nuestra evolución que si la gente desea acceder a las proteínas esté disponible para todo ser humano que las requiera desde el punto de vista de la soberanía y seguridad alimentaria. En nuestro ambiente nos relacionamos con cazadores, recolectores, familias de agricultores a pequeña (pero suficientes) escala, otros productores ganaderos de escala familiar. Donde las necesidades se satisfacen de manera eficiente y dinámica mediante un precio justo o el intercambio, aunque parezca primitivo nuestros ambientes no están gobernados por el dinero ya que nuestro fin es proveer de alimentos sanos y nutritivos a todo aquel que lo desee.

- Se soslaya el rol de la ganadería extensiva como forma de producción de alimentos en zonas donde ninguna otra forma de producción es posible. Cada vez que menciona la ganadería extensiva y la producción a pequeña escala es solo para adjudicar un comentario social. No es posible separar a la sociedad de la producción de alimentos donde el principal beneficiado es el ser

230 A este efecto es bueno recordar el evento paralelo celebrado en el CSA40 en 2013 sobre la contribución de los pastores a la seguridad alimentaria.

www.fao.org/cfs/cfs-hlpe
humano integrante de esa sociedad. Por consecuencia nuestros medios son la economía, el ejercicio de la administración, la política y la geografía, así como muchas de otras disciplinas y materias. Porque claro somos sociedad y nos relacionamos. Por tal nuestro eje es la alimentación porque de ello depende nuestra buena salud y buen vivir. Y si funciona, ¿Por qué destruirlo o hacerlo desaparecer?, si nuestras prácticas están salvando seres humanos que no se dejan arrastrar por las tendencias mundanas de la esclavitud a guantes blancos como son los sistemas neoliberales que permiten que la fuerza la tenga el capitalista y no la inmensa minoría de familias que producen alimentos sanos.

La gran mayoría de nuestros sistemas se asientan en sitios donde no es fácil realizar otras actividades, caracterizados por la alta variabilidad climática y con ello la disponibilidad de recursos forrajeros y agua. Los pastores somos capaces entonces de garantizar seguridad y soberanía alimentaria en sitios donde no hay otras opciones productivas. La movilidad, que es el eje de la estrategia de vida y producción, es una característica especial que nos permite sobrevivir en estas regiones tan extremas con situaciones climáticas variables e impredecibles muchas veces. Esto nos posiciona además, como sistemas productivos con alta resiliencia y por ello, altamente capaces en cuanto a la adaptación al Cambio Climático. Pese a ello no dejamos de vivir en sitios con alta vulnerabilidad al Cambio Climático, por lo que es indispensable contar con la información sobre predicciones reseco de sus efectos en nuestros territorios.

- El informe se centra en la ganadería tecnificada, despreciando la producción tradicional. No queremos robar protagonismo ni competir con la voraz innovación tecnológica, solo demandamos que la información sea veraz y sencilla al entendimiento del consumidor. Demandamos no engañar a la gente. Que los comensales puedan elegir y que tengan acceso a lo mejor al precio correcto. No estamos de acuerdo con la tecnología al servicio del mercantilismo de los alimentos, somos productores de alimentos y nuestro principal objetivo es promover la producción de alimentos saludables y perfectos para nuestros ambientes. Donde nutrimos a nuestro pueblo que nos elige por sus características geográficas y culturales, no somos una tendencia de la moda estamos y hemos existido siempre, somos el origen y allí buscamos las respuestas. Nos ignoran, les son indiferentes las prácticas ganaderas indígenas y criollas que sostuvieron naciones y sostienen pueblos enteros evitando la pobreza urbana, la malnutrición, la desidia, la violencia, el hambre.

El Pastoralismo/ Sistemas Pastoriles basados en la movilidad, es un sector que no está suficientemente visibilizado en nuestras sociedades y en los niveles de decisión política, nacional y global. Se lo incluye en otros sistemas en manos de campesinos o indígenas pero en realidad los pastoralistas tenemos muchas especificidades en nuestra forma de vida y producción que deben ser tenidos en cuenta. Hablamos de formas de tenencia de tierras, de las necesidades especiales en políticas de desarrollo rural, de infraestructura, en servicios de salud, educación, necesidades especiales en términos de conectividad, de asistencia técnica, entre los puntos más relevantes.

- Se desprecia a los pequeños productores como parte del sector inversor e innovador. El discurso utilizado es totalmente excluyente y ambiguo. No queremos un discurso coherente a nuestro orgullo ganadero, queremos acciones y conceptos firmes que avalen nuestra permanencia y sostenibilidad, que garanticen nuestra paz social y económica. Que no es una economía sólida, son muchas
economías sólidas donde ganamos todas y todos. Fundamentos que garanticen la nuestra permanencia en nuestros territorios, respeto a nuestros ambientes, integridad y dignidad de nuestras familias, herramientas claras y legítimas que nos permitan el acceso a la construcción colectiva y endógena de las políticas públicas de nuestros gobiernos.

Normalmente los organismos públicos y multilaterales se refieren al “sector productivo o privado” solamente para los sistemas empresariales y de gran escala. Nosotros somos un sector de la sociedad, privado, pero sobre todo productores de bienes y servicios para nuestras sociedades; producimos alimentos sanos y al alcance de los sectores populares y de los mercados urbanos más favorecidos. No identificarnos en esa categoría, usualmente nos ubica como sujetos de políticas sociales. Somos sujetos de desarrollo y exigimos políticas públicas para el desarrollo del aporte enorme que hacemos a la sociedad.

- **No se puede culpar a la ganadería tradicional del cambio climático antropogénico.** Acusan a la ganadería extensiva de ser la causa del cambio climático. La ganadería extensiva responde a las necesidades de los territorios donde se forjaron culturas milenarias y nuevas que se han sostenido mediante las prácticas ganaderas en las grandes extensiones donde ninguna otra práctica de producción de alimento prospero. Somos los mejores amigos de nuestros ambientes no destrozamos no cambiamos pasajes no desplazamos a nuestros prójimos para beneficios individuales, convivimos y nos adaptamos a los cambios. Mediante constantes y pequeñas inversiones que responden a las demandas de nuestros territorios, donde predomina un profundo respeto por los recursos naturales, nuestros animales son genética local, mestizos, adaptados, no producen impactos agresivos a nuestros ambientes. Por eso existimos, por ello no nos extinguimos, por ello somos capaces de proveer siempre de alimentos sanos.

Por ello, presentamos una lista de **puntos** en los que deberían derivar las **recomendaciones del informe** del HLPE:

1. Reconocer la diversidad de sistemas ganaderos que existen y analizarlos según esa diversidad, contextualizándolos según las circunstancias de los lugares donde se desarrollan.
2. Reconocer que los pequeños ganaderos y pastores son “productores” creadores de riqueza en los países y proveedores de alimentos sanos, casi siempre en los sitios más impredecibles y vulnerables climáticamente.
3. Derechos de acceso a la tierra asegurados y sistemas de tenencia adecuada a sistemas ganaderos variados, especialmente los sistemas móviles.
4. Igualdad de derechos a mujeres, jóvenes, pastores, pueblos indígenas.
5. Revalorización de los pastizales/ sistemas pastoriles.
6. Apoyo a planes de sanidad animal integrales, combinar saberes tradicionales y la tecnología convencional.
7. Acceso a mercados y fomento de mercados de proximidad (locales)
8. Incorporar productos de sistemas ganaderos en los planes alimentarios gubernamentales.

9. Acceso al financiamiento apropiado a los diferentes sistemas y realidades, especialmente considerando que los pastores acumulan en general capital en forma de animales y no en forma de tierras.

10. Programas de Desarrollo (no de asistencia social) destinados a los sistemas ganaderos de pequeña escala, móviles, trashumantes, etc., incluyendo la asistencia técnica adecuada.

11. Información oportuna sobre riesgo de eventos extremos (sequías, inundaciones, problemas erosivos...)

12. Formación de profesionales capaces de entender y asistir los diversos sistemas ganaderos desde perspectivas holísticas.

13. Rescate y sistematización de buenas prácticas ganaderas en las diversas regiones, investigación para mejores prácticas.

14. Fomento de sistemas ganaderos mixtos, agro-silvo pastoriles, tanto pequeños y medianos como grandes productores para zonas con bosques nativos; turismo rural y otras actividades de diversificación.

15. Derecho a servicios públicos (educación, salud, etc.) adecuados a las realidades de los diversos sistemas ganaderos.

16. Tecnologías de la Información disponibles para sistemas ganaderos en regiones aisladas.

Comentarios técnicos

Page 8: A paragraph is missing explaining the nutritional benefits of livestock production for population in arid lands, where horticulture is not possible. Milk is a key provided of micronutrients in these areas and this explains many of the cultural features of milk production and processing in pastoralist areas, such as women being in charge of it because of the children's nutritional needs (the issue is briefly mentioned in p 17 l 47-48)

Regarding GHG emissions, the attribution made by Gerber et al 2013 is debatable. We will come later to that.

Page 9: On issues, a real danger in these areas is posed by milk commercialization strategies without designing further market strategies to substitute these micronutrients in milk by equivalent ones from horticulture.

Page 17: no reference is done to the ecosystem services provided by livestock, on which FAO has produced a comprehensive report (http://www.fao.org/3/a-at598e.pdf). A further

231 La palabra “capital” proviene del latín “caput”, cabeza, ya que los mayores capitales reunidos históricamente siempre lo han sido en forma de cabezas de ganado. Es muy triste que el origen mismo del capitalismo no sea admitido ahora como una garantía para financiamiento en la mayoría de sociedades modernas, contribuyendo al empobrecimiento de los ganaderos.
review by FAO’s LEAP Partnership has provided a lot of evidence on the positive impacts of livestock on the environment and on sustainability (http://www.fao.org/3/a-av151e.pdf). In the whole section that starts at page 17, no mention to the intrinsic sustainability of extensive livestock production in areas of marginal crop production, as well as the challenges to improve an already very efficient system, is done (cf. Box 2).

Pages 24-26 (section 2.1.2): the price increase in livestock products as already observed in dairy products (http://www.thedairysite.com/articles/3629/fao-outlook-milk-and-milk-products/) seems not to be discussed even if it’s a likely scenario given the conditions discussed (e.g. p 25 l 35-36 “It appears that, with current methods of production, the “Western high meat” diet is not a feasible option whatever the increase in crop yields, the land-use change and even the livestock system”. This is a pity given the opportunities for poverty reduction that price increases bring, especially when it involves production of high added value, high-quality products that do not yield big quantities. This is especially relevant as it is the most marginalized livestock keeping communities (extensive livestock keepers including pastoralists) who would benefit more from this price increase if the adequate measures to facilitate their access to markets are taken into account – and of course taking into account the nutritional challenges that may appear as I have mentioned above.

Page 27 start: All what we have mentioned is not taken into account either in the comment on the Livestock Revolution. There seems to be a unique vision on future of the livestock systems as for increasing yield, and not quality or access to other tools for adding value to the production. This vision automatically ignores the most marginalized but most sustainable livestock producers – extensive livestock keepers including pastoralists. Cf. p 62 l 13-19.

Page 28-29 Box 4: the Mediterranean diet traditionally includes low quantities of high-quality animal products with very good nutritional characteristics such as the Iberian ham (Jiménez Colmenero et al 2010, but similar evidence is available for cattle and sheep products).

Page 32: the poor quality of data on pastoralism and pastoralists should be noted. To begin with, estimates on the area grazed by domestic herbivores (most of which includes both pastoralists and commercial ranchers, but with the overwhelming majority of it likely being

232 Hoffmann I., From T., Boerma D. (2014). Ecosystem services provided by livestock species and breeds, with special consideration to the contributions of small-scale livestock keepers and pastoralists. FAO Commission on Genetic Resources for Food and Agriculture. Background study paper no. 66.


234 http://dx.doi.org/10.1016/j.meatsci.2009.10.029

www.fao.org/cfs/cfs-hlpe
pastoralists) range from a) 25% of the continental land by Asner et al (2004:235); b) 31.5% assigned by Hoffmann et al (2014:236) but to which an unquantified portion of the area assigned to forests (27.7%) plus an unclear percentage of mixed systems (crops and pastures, pastured crops or pastured fallow lands); c) 60% assigned by Thornton et al (2002: Table 4237) taking in account only data from developing countries. Regarding the estimate of how many pastoralists there are in the world the situation is even more dramatic. There's not an agreed definition of pastoralist: dispossessed livestock keepers that have been excluded from livestock production and remain as cultural pastoralist? Extensive livestock keeper? What proportion of their livelihoods coming from extensive livestock should be the cutting line to consider or not to consider them as such? Even in EU countries that have actually articulated payments for sustaining pastoralist production and that have therefore accessible data, these data are not collected because they are not deemed to be interesting.

There is therefore a dramatic information gap that doesn't allow to design interventions or the much needed services in a population that is often rich in assets (e.g. the value of 50 camels in northern Kenya is way more than the mean bank account of an urban dweller in Nairobi) but poor in living standards (no access to education or healthcare, poor child survival, no access to finance services or information, poor nutritional status).

It should be noted that many of the challenges experienced by pastoralists are also experienced by commercial ranchers (p. 33), or at least the workers that work in these farms.

Page 32-33: Regarding the Smallholder mixed farming systems, it would be good to see further reference in the report on the sustainability of their systems as waste recyclers and users of marginal food sources that do not compete with human food (similar to extensive livestock). The border between these systems and Smallholder systems where animals represent less than 10 percent of the total farm output in value terms is not sharp at all – backyard livestock production takes place in both as a continuum. Considerations on these systems are very important also regarding future change (p 34) because of the increase urbanization of world population.

Pages 37-39 Section 2.4: the issue of price change is only discussed in a context of intensive livestock keeping, systematically ignoring the issues I have listed above.

235 http://dx.doi.org/10.1146/annurev.energy.29.062403.102142
236 op. cit.
Page 39 Section 2.5: this section is really poor, not considering how urbanization will affect livestock producers (see e.g. the example I provided above for backyard systems, but also issues related to expanding high quality markets and opportunities for marginalized collectives). A section on social elements should also consider the opportunities for rural development associated with livestock production, or the displaced livestock keepers due to the disruption of traditional production systems associated with mobility (and the consequent loss of production).

Page 43-44 Section 2.7: this section should be enriched through any improvements done to the previous sections following the comments above.

Page 45 Section 3.1.1: it is ignored that extensive, high-added-value production systems, have a greater capacity to create jobs (precisely because of the higher added value) than industrial production systems.

Page 47 Section 3.1.2: again, a pretty poor section. We recommend reading, reviewing and extensively citing Flintan (2008238) or WISP-IUCN (2013239).

Pages 47-51: all sections can be enriched based on the comments provided above.

Page 52 Section 3.3.1: This is a key issue for pastoralists and extensive livestock keepers. The claim of 14.5% of the total GHG emissions being triggered by livestock is based on higher methane emissions triggered by cellulose metabolism and higher GHG potential of that gas. Pastoralists have protested against these claims as, even if the raw data may be accurate, the following automatic policy implication of restricting extensive livestock to combat climate change makes no sense. How can pastoralist be blamed for it if climate change is happening only during the last two centuries and pastoralism has been practiced since 8000 BC?!!! An upcoming by one of our team members explains how GHG emissions are not going to be reduced but rather exacerbated by such policies – it has already been submitted for publication and should be ready for sharing in the next weeks. Cf. also p. 62 l 20-40

Page 52 section 3.3.2: very negative overall view on the interaction between livestock and the environment. Comments to page 17 above apply extensively here.

Page 53 section 3.3.3: it should be clearly said that the issue with water (both demand and pollution) is exclusive of the industrial systems. The case study on pork production in China (Box 5 at page 36) illustrates very well how traditional systems were designed to preclude these kinds of issues. Even more so for pastoralist and ranching systems.

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Page 55 section 3.3.4: no mention at all on the intrinsic capacity of pastoralists for climate change adaptation! There are loads of evidences on this in a livelihood that makes the most out of climate variability and production heterogeneity.

Pages 55-57 sections 3.4.1 and 3.4.2: it would be good to talk about the convenience of processing food at the production countries and areas, as it precludes the spread of zoonoses and it would ease commercialization of products from marginalized areas, increase the added value of the production in origin. A case study on this is being prepared to be added to the revised version of this LEAP Partnership document: http://www.fao.org/3/a-av154e.pdf.

Page 59 Box 8: a fundamental missing constraint is the lack of service provision that allows the endogenous development of pastoralist communities. Education, when provided, is done through boarding schools, which drives to drop-outs from the pastoralist livelihoods and makes that there will never be pastoralist and mobile doctors, lawyers, teachers, engineers... Healthcare is not provided because it is deemed too expensive. No access to energy means no way to diversify production or to process the foods in origin so to add value. Finance services are not provided except for new developments with mobile money, but it is still impossible for a pastoralist that may owe assets worth a lot of money but no land (because of the very sustainable communal land tenure systems) to get a loan! Even for mobile phones, which have caused a revolution by modernizing pastoralist livelihoods, getting network coverage is more than challenging.

A further ignored point is wrong investments. Many investors insist e.g. in “improving” pastoralist livestock breeds, that have been selected for centuries not because of their productivity but because of their harshness. This error has a direct consequence in terms of sustainability and of food security. An upcoming paper on that is to be published next year, although the draft is not ready yet but it can be shared in the near future.

Further sections from there on would be extensively revised if the arguments we have listed here were to be considered.

103. Benjamin Schraven, German Development Institute (on behalf of the research project: "Promoting food security in rural Sub-Saharan Africa: The role of agricultural intensification, social security and results-oriented approaches"), Germany


www.fao.org/cfs/cfs-hlpe
The report is very interesting concerning the meaning of livestock for producers, consumers, industrial and developing countries as well as different farming systems. The many examples are very helpful in that regard.

On the other hand there are many repetitions and some issues are overly relativized - in particular with regard to basic positions, dilemmata and conflicts (e.g. agroecology vs. sustainable intensification or food sovereignty vs. free trade).

There are also "brave"/encouraging text passages - for instance when it is clearly mentioned that most scientists are in favor of GMOs whereas most laypersons are not. Unfortunately, these issues are not reflected in the general discussions. Even worse, no indications (criteria, information needs, research (gaps) etc.) concerning how these basic conflicts could be solved are being presented.

Furthermore, there are also some contradictions when it comes to time pressure (from "very urgent" to "we need more data, research ... to take better decisions"). Are there not some recommendations that could definitively be regarded as adequate ("no regret")? One could structure the recommendations on a scale from "no regret und urgent" to "very sensitive, more info needed, and can wait a bit longer".

104. **Representación Permanente de la República Argentina ante la FAO, FIDA y PMA**

De nuestra mayor consideración:

Se remiten adjunto al presente correo los comentarios del Ministerio de Agricultura, Ganadería y Pesca, de la República Argentina, relativos al Borrador Cero del Informe de referencia.

Asimismo, encontrarán, a continuación, las respuestas a las preguntas propuestas por los autores del citado Informe:

**QUESTION 5.**

The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

Answer: One of the challenges that the report could further elaborate on is the danger that restrictive and scientifically unjustified private standards pose on the regulatory authority if States. It is important not to undermine state capacity to regulate in a transparent, science-based and undiscriminatory manner. Concerning health and animal care the conclusions could be rewritten as follows.
"18. Extend and prioritize actions aimed at tackling the world's most serious nutritional challenges through action to:

c) review the scope for a range of interventions, preserving the State s role in regulatory matters, including labeling (covering nutrition as well as sustainability indicators), advertising restrictions, taxes and public procurement for targeted feeding programs

20. Increase efforts in animal disease surveillance and treatment, both to improve livestock sector productivity and to reduce dangers associated with the spread of pests and outbreaks of animal diseases and zoonoses.

21. Revisit policies, including the use of antibiotics in the livestock sector, to reduce the growing health risks associated with anti-microbial resistance, directing energies to strengthen the tripartite collaboration between FAO, OIE and WHO for combating antimicrobial resistance by providing recommendations and taking actions based on sound scientific evidence following the applicable multilateral rules and recomendations for the development of sustainable food production systems that prevent diseases, promote good animal husbandry and management, biosecurity, hygiene practices and health."

In the same vein, it is of the outmost importance not to create arbitrary standards - not compatible with the scientific principle - which could hinder the ability of countries to harness the opportunities that the multilateral trade system has to offer. Therefore, the conclusions could be further extended as follows:

"22. Give higher priority to establishing and enforcing agreed standards of animal care developed for different livestock production systems and species, especially in intensive systems, without creating a disguised restriction on international trade or unjustifiable discrimination between countries where the same conditions prevail: include financial and technical support for improved animal care in agricultural development funding initiatives."

Concerning Market Performance (point 3.2.2), the reasoning of the argumentation is somehow misled. Though higher prices might have a marginal effect on the demand of food and feed (inelasticity of the demand), they do encourage investment. Given that agriculture is crucial for developing countries, such dynamic should be positive for food security. Moreover, low food and feed prices discourage food and feed investment therefore causing further drop in the future price.

The report does a good job at acknowledging the importance of the multilateral trade system. Still, it fails to address the negative effects that the agricultural protectionism has inflicted on developing countries. Namely market access restrictions, domestic support measures (included the unlimited amounts of green box), export subsidies and arbitrary non-tariff trade barriers. In this respect, the report should make a call for the swift conclusion of the Doha Developing Round in accordance to its mandate. The disclaimer used for signaling that the conclusions of the paper are subject to the result fo the 10th
Ministerial Conference is appropriate. Still, a stronger statement against said protectionism is in order.

QUESTION 12.

Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

General disclaimer: We reaffirm that the primary forum for all issues related to climate change is the United Nations Framework Convention on Climate Change (UNFCCC), and that no part of this text should prejudge or duplicate neither possible results of the UNFCCC work or its principles and provisions.

In addition, we suggest the following changes with regard to specific provisions in the text:

1. Page 7, line12: “…much still needs to be done, including in the way our food and agriculture systems perform economically, socially and environmentally, how they can restore and maintain the already stressed natural systems that underpin food production now and into the future”
   - Rationale: There is no international consensus currently with regard to the “restorative capabilities” of food and agriculture systems.

2. Page 8, line 51: “Climate change is already impacting on the agriculture sector, which will have to continue to adapt as well as to reduce its contribution to greenhouse gas emissions, always taking into consideration the principle of common but differentiated responsibilities, respective capabilities and social and economic conditions of countries, as expressed in the United Nations Framework Convention on Climate Change.”
   - Rationale: With regard to climate change, there should be an inclusion of the principle of common but differentiated responsibilities, as agreed in the UNFCCC, which is the primary international forum on this issue.

3. Page 15, line 29: “Reflecting the evolution of thinking about environmental sustainability, the WDR notes that with rising resource scarcity and mounting negative externalities, agricultural development and environmental protection have become closely intertwined. “Agriculture’s large environmental footprint can be reduced, farming systems made less vulnerable to climate change, and agriculture harnessed to deliver more environmental services. The solution is not to slow agricultural development – it is to seek more sustainable production systems... but realizing on this promise also requires the visible hand of the state – providing core public goods, improving the investment climate, regulating natural resource management, and securing desirable social outcomes”. There are important implications here, in maintaining equilibrium between different farming systems and between local production and international trade.”
- Rationale: This paragraph makes a reference to the “environmental footprint”, a concept which does not have multilateral consensus, and should therefore not be included. We would suggest that the whole paragraph be removed, or at least the reference to “environmental footprint”.

4. Page 21, line 17: “biodiversity in agro-ecosystems, including the animal component, performs important ecological services beyond food production, and conditioning such as recycling of nutrients, pollination, pest control, regulation of microclimate and local hydrological processes, detoxification of noxious chemicals, control of greenhouse gas emissions, risk reduction under unpredictable environmental conditions and the conservation of surrounding natural ecosystems.” – Rationale: We believe that the CFS is not the appropriate forum to address issues related to general ecological services. Thus, we believe this paragraph should be removed.

5. Page 45, line 29: “The priority environmental challenges are: reducing the intensity of greenhouse gas emissions; reversing land degradation and biodiversity loss; reducing water pollution; and adapting to climate change” – Rationale: We believe that with regard to food production and distribution, the focus should be on the reduction of emissions intensity and on increased efficiency, as opposed to total emissions reductions, as this would negatively affect food security.

6. Page 52, line 11: “GHGs from enteric fermentation (the main source of livestock emissions) are trending upwards in developing countries while in developed countries they have decreased (Tubiello, 2013). (This is the result of increase in livestock numbers in developing countries and increase in efficiency of production in developed countries).” – Rationale: We believe this text does not accurately reflect what is expressed in the referenced document (Tubiello, 2013), which states that “Averaged over the period 2000–2010, Asia and the Americas were the largest contributors, followed by Africa and Europe. Emissions growth rates were largest in Africa, on average 2.4% yr⁻¹. In both Asia and the Americas emissions grew at a slower pace (1–1.2% yr⁻¹), while they decreased in Europe (−1.7% yr⁻¹). Indeed, in the previous decade 1990–2000, Europe’s contribution had been larger than Africa’s.” In other words, the reference to the Americas includes both Latin American countries and the United States, and does not distinguish between emissions by each. In addition, the figures in the referenced document which do distinguish between developed and developing countries refer only to emissions in 2010, and not a particular upward or downward trend. Given this, we believe this text should be removed from the document, as it depicts a situation in which developing countries have a greater responsibility to act to reduce emissions, when this could adversely affect food security, in a context in which the overarching priority of developing countries is to eradicate poverty and hunger.

7. Page 54, line 12: “The water footprint of livestock products is much higher than for crop products in terms of calories produced (although when biological value of protein is compared, no plant protein is significantly more efficient at using water than protein produced from eggs, and only soybean is more water-efficient than milk and goat and chicken meat (Mekonnen and Hoekstra, 2012; Shlink et al., 2010). Animal products from industrial, feed-based systems are generally more water intensive and generally consume and pollute more ground- and surface-water resources than animal products from grazing or mixed systems.” – Rationale: This paragraph makes a reference to the “water footprint”, a concept which, like the “environmental footprint”, does not have multilateral consensus, and should therefore not be included. We would suggest that the whole paragraph be removed.
8. Page 62, line 20: “The livestock sector has a large potential to reduce the intensity (ghg/kg of product) of greenhouse gas emissions, although it is much less likely for total emissions given the projected increase in livestock production in the context of population growth and the need to safeguard food security. Mitigation (reduction or prevention) of the sector’s emissions could be achieved by a reduction in production and/or consumption, by an increase in production efficiency, or by shifting the structure of production towards less emission-intensive animal food types. Many technical options to reduce emissions exist, including feed supplements and feed management, grazing land and manure management, health management, improvements in genetics and animal husbandry practices. In more intensive systems, progress could be made by introducing technological innovations to increase efficiencies in production and shift towards monogastric species...Promoting production and consumption of less resource- and GHG-intensive livestock types can change the emissions trajectory of the livestock sector. Soil carbon sequestration is also an important option that shows potential for mitigating net emissions from grazing livestock. For instance, restoring degraded soils, better adjusting stocking density and using legumes has a significant potential worldwide for mitigation in the livestock sector”

- Rationale: We believe that there are no “one-size fits-all” solutions which can be applied globally, and that the mention of specific measures necessarily leaves out others which could be more appropriate and effective given specific national circumstances and capabilities, as well as economic, social and environmental priorities. As is pointed out in the same page: “…in each country there are priorities that reflect the particular farm systems, socio-economic and agri-ecological conditions, history and culture, and public preferences”. Given this, we believe that there should be no mention in the text of specific options for measures that might be implemented.

9. Page 63, line 51: “The priority environmental challenges are to meet FSN objectives while reducing the intensity of greenhouse gas emissions, reduce pollution, reverse land and soil degradation and biodiversity loss, and conserve water resources, and enhance the provision of ecosystem services and aesthetic landscapes.”

- Rationale: The question of “ecosystem services” is not multilaterally recognized in the UNFCCC, which is the primary forum on climate change. In addition, we believe the CFS is not the appropriate forum to address issues such as the preservation of aesthetic landscapes. Furthermore, we believe that with regard to food production and distribution, the focus should be on the reduction of emissions intensity and on increased efficiency, as opposed to total emissions reductions, as this would negatively affect food security.

10. Page 64, line 50: “However, when the impacts of farm practices are not taken into account by farmers and livestock keepers, because there is no financial remuneration for the provision of public goods (such as carbon sequestration in soils or habitats for wildlife), or penalties for polluting water courses or harming biodiversity for example, or the social consequences are not factored in to producer decisions, then sustainability is compromised…”

- Rationale: We believe that this sort of text can be used to justify the implementation of agricultural subsidies, which are contrary to WTO rules. We therefore believe this sentence should be removed.

11. Page 66, line 5: “Use best farmer practices for reduced GHG emission intensity, including through reduced “

- Comment: The sentence seems to be incomplete

12. Page 66, line 13: “Set payments for using and for providing environmental services that are not remunerated through the market”
- Rationale: This sort of measure may be used to justify the implementation of agricultural subsidies, which are contrary to WTO Doha Round mandate. We therefore believe this sentence should be removed.

13. Page 84, line 18: “...devise policies aimed at adaptation to climate change and at mitigation by reduction in emission intensity and promotion of carbon sequestration, subject to the objectives, provisions and principles of the United Nations Framework Convention on Climate Change, including that of common but differentiated responsibilities and respective capabilities.”
- Rationale: The question of carbon sequestration does not have multilateral consensus and should, therefore, not be included in the text. In addition, with regard to climate change, and especially concerning mitigation, there should be an inclusion of the principle of common but differentiated responsibilities, as agreed in the UNFCCC, which is the primary international forum on this issue, and given that the obligations in this regard are different for developed and developing countries.

14. Page 84, line 35: “Incorporate wherever possible incentives (to reward public goods provision)...”
- Rationale: This sort of measure may be used to justify the implementation of agricultural subsidies, which are contrary to WTO rules. We therefore believe this sentence should be removed.

COMENTARIOS MAGYP AL INFORME “SUSTAINABLE AGRICULTURAL DEVELOPMENT FOR FOOD SECURITY AND NUTRITION INCLUDING THE ROEL OF LIVESTOCK”

COMENTARIOS GENERALES

Resulta preocupante el enfoque de mitigación al cambio climático asociado al sector agropecuario y sin distinción en función del grado de desarrollo de los países. La ausencia de distinción entre los países contradice el principio de Responsabilidades Comunes pero Diferenciadas de las Partes de la Convención Marco de Naciones Unidas contra el Cambio Climático (CMNUCC), por el cual los países en desarrollo no están obligados a asumir compromisos vinculantes cuantitativos en materia de mitigación ya que no han sido los principales causantes del fenómeno del Cambio Climático.

Atento a ello, esto no significa que no apoyemos las iniciativas en materia de cooperación, intercambio de tecnología e investigación que puedan ser lanzadas a nivel internacional, siempre y cuando no impliquen asumir compromisos cuantitativos de reducción de emisiones en agricultura. Incluido, nuestro país en su Contribución Previa y Determinada a Nivel Nacional ante la CMNUCC, informó que prevé reducir un 30% las emisiones de GEIs al 2030, tomando un escenario “Business as Usual”. Sin embargo, nuestro país decidirá de acuerdo con sus capacidades, condiciones, necesidades y prioridades, en qué sectores mitigará. Particularmente, entendemos que no sería apropiado adoptar compromisos en mitigación en el sector agropecuario dado que: (a) reducir en términos absolutos las emisiones en el sector agropecuario implicaría producir menos alimentos, lo cual no resulta compatible con el objetivo de salvaguardar la seguridad alimentaria en un contexto de población mundial creciente; (b) el sector agropecuario es fundamental para el desarrollo social, económico y rural de nuestro país y (c) el sector es el principal damnificado por el cambio climático (y no su principal causante) por lo que los esfuerzos deben centrarse en adaptación.

COMENTARIOS ESPECÍFICOS

3.4 HEALTH AND ANIMAL WELFARE

Apartados 3.4.1 Food-borne diseases y 3.4.2 Animal and human diseases

www.fao.org/cfs/cfs-hlpe
En primer lugar deseamos resaltar que compartimos las preocupaciones señaladas en ambos apartados tanto en relación a las enfermedades trasmitidas por los alimentos, y especialmente los productos cárnicos, así como en relación a los costos que se generan a partir de la propagación de enfermedades animales.

Si bien los países tienen derecho a adoptar todas aquellas medidas sanitarias que consideren necesarias para proteger la salud y la vida de las personas y de los animales, consideramos importante destacar que dichas medidas deberán ser adoptadas en conformidad con las disposiciones del Acuerdo sobre la Aplicación de Medidas Sanitarias y Fitosanitarias de la OMC (MSF/OMC). Entre otras cuestiones, deberán adoptarse sobre testimonios científicos suficientes y basarse en una evaluación de riesgo adecuada a la circunstancias; deberán ser aplicadas de forma de que no discriminen arbitraria o injustificadamente entre distintos países así como entre los productores nacionales y los extranjeros; y se deberán basar en normas, directrices o recomendaciones internacionales (en este caso, aquellas de la OIE y el Codex Alimentarius).

Es importante resaltar el cumplimiento de las obligaciones multilaterales en la materia a fin de evitar que, con el pretexto de salvaguardar la salud humana o animal se adopten barreras no arancelarias que no tengan otro fin que proteger injustificadamente los mercados nacionales de la competencia extranjera.

Apartado 3.4.3 Antimicrobial resistance

Consideramos importante hacer referencia en este apartado a los trabajos que se vienen desarrollando en el marco de la FAO en materia de resistencia antimicrobiana, incluyendo la Resolución en la materia aprobada por todos los miembros de la Organización en el mes de junio del presente año durante la 39º Conferencia de la FAO. Allí los miembros de la FAO acordaron, por un lado, distintas medidas en vistas de retrasar el desarrollo y la expansión de la resistencia a los medicamentos veterinarios mientras que, por otro lado, reconocieron que el uso de sustancias antimicrobianas en la ganadería y el sector acuícola resulta esencial dada la creciente demanda de proteínas animales por parte de una población mundial que crece rápidamente y que se prevé que supere los 9 600 millones de personas en 2050. Atento a ello, se ha acordado que la resistencia a los antimicrobianos solo puede abordarse trabajando conjuntamente entre veterinarios, agricultores, productores de piensos y alimentos, y profesionales de la inocuidad alimentaria, a fin de apoyar las mejores prácticas de sanidad y producción animal que respalden una utilización razonable de las sustancias antimicrobianas.

Apartado 3.4.4 Animal Welfare

Coincidiendo con lo señalado en el presente apartado respecto a que el Bienestar Animal es un tema de relevancia para el desarrollo sostenible de la agricultura. Sin embargo, consideramos importante que se destaque expresamente allí que la OIE es el organismo internacional de referencia en la elaboración de normas relacionadas con bienestar animal y se enfatice la necesidad de que los países se basen en información científica/técnica al abordar el tema. En tal sentido, se debe considerar que la OIE, siendo la organización internacional de referencia para la sanidad animal, viene incluyendo el tema entre sus prioridades desde el año 2001 y ha elaborado desde ese entonces recomendaciones y directrices que abarcan los principales componentes del bienestar animal.

105. Elise Golan, U.S. Department of Agriculture, United States of America

Comments from the US Department of Agriculture

www.fao.org/cfs/cfs-hlpe
Submitted by Elise Golan, Director of Sustainable Development, Office of the Chief Economist, USDA (egolan@oce.usda.gov)

HLPE report on sustainable agricultural development for food security and nutrition, including the role of livestock (Draft V0)

We would like to commend the authors on a good start towards a high-quality, comprehensive analysis examining the role of livestock in sustainable agricultural development. We have noted a number of areas where the report would benefit from a more balanced approach. The report is also rather long and meandering. It would benefit from pruning (and a reduction in acronyms). We also urge the authors to make a stronger case for the centrality of food security and nutrition in sustainable food systems. Food systems are not truly sustainable unless they meet the nutritional needs of populations.

Specific comments:

pg 9 line 37: Please supply reference for the statement that expected food demand can be met with existing technologies.

pg 9 line 40: This “key question” packs a number of assumptions. Why only “well understood technologies and approaches”? What does that mean? Why only farmer innovation and knowledge? Why “diversifying production systems”? This question presumes many answers. The three key questions beginning with line 47 seem to better reflect the objectives of the paper.

pg 12 line 24: The reference to “protective factors” is unclear. In addition, the other side of this position should be presented: trade and markets can expand diversity and resilience of diets. For example pg 12, line 21 for example “Compared with the less diversified diets of rural communities, city dwellers have a varied diet ....

Pg 12: For balance, the three paragraphs listing the disadvantages of longer supply chains should be balanced by at least one pointing out that larger market networks can expand the diversity and resilience of food supplies. For example, see the conclusion of the section starting on page 50: “Trade and trade liberalization is often a key element in achieving food security and nutrition” and “The experience over many years and many countries demonstrates that the benefits of trade liberalization and globalization clearly outweigh the risks” (pg 51 line 37).

pg 15 line 1: This paragraph is based on WDR report. Does the line beginning “Similarly, serious concerns...” also reflect WDR conclusions? If not, need to specify who has these concerns.

Pg 16 line 40: Why is this FAO definition referenced here instead of definition of sustainable food systems developed by HLPE and endorsed by CFS (found in footnote 10)? Particularly strange to highlight this FAO definition since the conceptual framework presented in section 1.5 “builds upon the definition of sustainable food systems provided by the HLPE.” This definition deserves more than a footnote since it is the foundation of the analysis.

pg 18 Box 2: For balance, the titles of the boxes on sustainable intensification and food sovereignty should have similar titles: “Sustainable intensification debate” and “Food sovereignty debate.”
just “Sustainable intensification” and “Food sovereignty.” Current title choice suggest that only sustainable intensification has questionable usefulness.

Page 18 – Footnote: It is odd that the report puts dietary guidance in such a negative light. Also curious that this is an international document put out by the UN, but only references US Dietary Guidance and not the more than 30 other national dietary guidance systems. Some of which do address food and nutrition security and sustainability. Footnote #9 is particularly loaded: “In 2015, the American Dietary Guidelines Advisory Committee abandoned previous restrictions on cholesterol and fat and recommended that artificial sweeteners should not be promoted for weight loss. Other studies have created ambiguity over appropriate recommendations on reducing salt, alcohol, coffee and increasing breastfeeding.” This is rather strong language and would recommend using statements directly from the DGAC report.

pg 21 line 17: This paragraph does a good job describing the complexity of and interconnectedness among agricultural production systems and the ecosystems.

pg 23 line 5: This paragraph does well to remind readers of the dynamic nature of agricultural systems.... “continually evolving and adjusting to meet the increasing demand for food and changes in nutrition and diets in a context of resource constraints, technological developments, social consideration and climate change.”

pg 24-26: It is unclear why the different scenarios are presented. The exploratory and normative scenarios are a more appropriate fit in section 3, Challenges to Achieving Sustainable Agricultural Development. These scenarios cannot be used as baseline projections. In addition, the level of detail is not enough to understand the models supporting the scenarios. What is the authors’ objective in presenting this research? Is it to propose the “pathways” listed in the paragraph beginning on line 50 page 25 (Erb’s pathway)? Again, this discussion is better placed in Section 3. And, if the authors are proposing the pathways listed on page 25 as the only pathways, they need to supply better justification. What about the possible pathway of technological change to improve yields and the sustainability of natural resource use (and environmental externalities)? The summary paragraph at the top of page 26 seems to acknowledge this possibility. .

pg 26 line 43: The paragraph on local foods does not fit here. In addition, the wording of the paragraph seems to suggest that local foods have all the benefits listed in the paragraph. While empirical evidence finds that strong local food systems in a community can increase employment and income in that community, life-cycle assessments suggest that localization can but does not necessarily reduce energy use or greenhouse gas emissions (or food loss and waste).

pg 30 line 24: Need to define “SADL” at first usage.

pg 32: The description of the four categories of livestock keepers is incomplete without statistics on average income, food security and nutritional status of the livestock keepers. The analysis really loses focus on nutrition and food security here.

pg 33 line 28-50: These additions to the typology are confusing and unnecessary.
pg 40 line 6 – pg 41 36: This section is written with a definite viewpoint. Needs balance (or deletion):

- Should include discussion on the value to consumers of lower priced and varied diets achieved through longer supply chains
- There is a huge variety of choice in large supermarkets and groceries, including a huge variety of fresh and minimally processed produce. It is incorrect to suggest that consumers in Western countries only have access to foods high in salt, fat and sugar.
- The para on industry is too simplistic to be informative. Agro-food industry will respond to consumer demand. That’s how they make money. Healthful options can be more profitable. A bottle of water makes more money for a beverage company than a can of soda. The economic literature is more nuanced than presented here.

pg 41, lines 4-16: This analysis from Lang and Barling and Lang et al should not be stated as fact, but rather as their conclusions.

Pg 41 line 13-16: Unclear how this discussion on LCA fits here.

pg 42 lines 53-56: As noted when this material on local foods was introduced the first time, the wording of the paragraph seems to suggest that local foods have all the benefits listed in the paragraph. While empirical evidence finds that strong local food systems in a community can increase employment and income in that community, life-cycle assessments suggest that localization can but does not necessarily reduce energy use or greenhouse gas emissions (or food loss and waste).

Pg 41 footnote 14: Over a similar time period, the percentage of fat in pork and beef has dropped. Footnote should be deleted or expanded to include more complete information.

Pg 43 line 25: Should note possibility that livestock intensification can result from diversification, as described on page 34 line 25. Intensification through CAFO is not the only route.

pg 45 line 10: Many types of safety-net provisions can improve access to food, not just entitlements. In addition, higher incomes/wages should be added to the list.

pg 45 para starting on line 16: This discussion needs more context. How does the definition of sustainable food systems presented earlier fit into this discussion? How were these priority challenges developed? Are they exhaustive? If they are met, will food systems be sustainable? In addition, there seems to be a bit of a blurring of terminology. The para starting on line 35 states that the challenges are discussed in the context of the farming typologies...and can vary by typology (as shown in section 3.5). So, are the challenges described in sections 3.1-3.4 more accurately described as objectives of sustainable farming systems? These sections seem to be a bit of a mishmash of challenges and objectives.

pg 45 line 43-45: Why are these lines italicized? What is the source? This pattern is inconsistently repeated throughout the section. Are these summary headings? Are these external quotes to prompt the discussion?
This paragraph is incredibly biased. While Pew is a credible survey organization, it is not an unbiased research entity and should not be quoted out of context. (The Wikipedia entry for Pew notes that the “…the modern day organization is considered to represent the far left on many issues, specifically those pertaining to the environment and America's oceans.”) The Pew quote should be dropped. The bias in this paragraph favoring the EU approach of building farms with “recreational space” also needs to be balanced. Building strong, resilient rural communities in the face of declining relative agricultural GDP requires a multifaceted approach, including policies fostering the “creative class” and communities centered around natural amenities (reports on these types of policies in the US are found at http://www.ers.usda.gov/topics/rural-economy-population/natural-amenities.aspx).

What is the point of this section? A broader discussion of how societies determine “societal values” and then balance individual and societal values would help shed more light on the tradeoffs inherent in these choices. What is the challenge here? What is the objective of a sustainable food system? By focusing too closely on GMO and animal welfare, this section loses the bigger issue.

Please provide source for the claim that “most people agree there is a fundamental ethical obligation to inform the public about issues of concern to them.” It is impossible to inform the public about every aspect of a food production system that might concern someone in the consuming public. This statement likely needs some nuance. Is it based on survey results?

Seems like an obvious counter argument is possible here. Were other economic and livelihood functions of more productive milk production, such as higher incomes, better nutrition, less herding (and potentially more schooling) by children also included in these analyses?

Seems like an obvious counter argument is possible here. Yes, poor households that are not part of the formal economy are relatively insulated from business cycles etc. However, because they are poor, they also tend to have fewer resilience-providing assets, including health assets. For statements supporting trade and markets, see page 50: “Trade and trade liberalization is often a key element in achieving food security and nutrition” and “The experience over many years and many countries demonstrates that the benefits of trade liberalization and globalization clearly outweigh the risks” (pg 51 line 37).

On page 45 the authors state that “Current projections are the starting point for understanding likely demands and these suggest that there will be an especially rapid escalation in demand for animal sourced food.” They go on to introduce the challenges to meeting these increased demands. Given that the challenge to meeting this demand is the topic of discussion in Section 3, the discussion here of whether or not meat consumption is efficient—or whether it could be replaced with fake meat—does not fit.

While it is true that farmers who are not connected to supply chains and markets are less vulnerable to market prices, they also do not benefit from good prices and expanded markets. (Again, see conclusions on page 50 and 51.)
pg 50 line 48: Why is price manipulation proposed as a policy to drive better distribution of value-added along the supply chain?

pg 50 line 54: The long list of potential problems associated with international trade tend to overwhelm the two main conclusion of this section: “Trade and trade liberalization is often a key element in achieving food security and nutrition” and “The experience over many years and many countries demonstrates that the benefits of trade liberalization and globalization clearly outweigh the risks” (pg 51 line 37).

pg 52 line 41: What is the source for this claim “The official perception that pastoralists cause widespread environmental damage…” Seems out of context here.

pg 59 section 3.5: This section should be the main focus of section 3 and yet it is poorly developed and strangely disconnected from the discussions in 3.1-3.4.

Sections 4 and 5: These sections are poorly connected to the foundational material in the previous sections. Sections 4.3 and 4.4 in particular include material that bears no relation to the challenges framework laid out in Section 3. It would be disconcerting to think that the pathways and policy advice are “canned” advice from other reports and are not a result of the analysis presented here. We also note that while the recommendations include many related to diversified and nutritious diets, the analysis does not adequately delve into the expanding literature on consumer choice and food demand. As a result the evidence base for these recommendations is missing.

We will save further comments on sections 4 and 5 for the next draft.

106. Joanne Daly, Australia

This is an excellent draft. I found it well written, clear and to the point. It walked the fine line between understanding the negative impacts of livestock versus the nutritional benefits.

My specific comments are below:

- I am still struggling a bit from how it differs from the earlier HLPE report on food and nutrition from 2014, so it might be worth making this clearer about actually what this report does that adds value – be a bit more specific in the first chapter (see page 10, line 12 +)
- Use of acronyms could be limited to where a phrase or title or name is beyond a single section of the report eg WDR (p 15) would be spelt out as I think that references to it are restricted in the report; also SAD instead of sustainable agricultural development; ASF, AKST, etc I think that the report is more readable if these terms are spelt out.
- The report would benefit from clearer, early mention of green house gas emissions and livestock production....it first appears on page 17 almost as an aside and yet this will be a critical issue to be addressed if livestock production is to be expanded. (I see that it is dealt with in 3.3.1) Even if it is not to be a major topic of the report, it would be best to acknowledge it up front and then put it aside.
- I liked the boxes in which arguments could be more fully developed without detracting from the flow of the main text
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- Check on page 38-39: I could not find reference in the text to Figure 7 (I may have missed it). Also the statement that biofuel production had increased six times looks a bit of an overestimate from Fig 7. Check the numbers – could be more like 4-5 fold (30 B litres to 125?? B litres)
- Box 6 – the point about demographic dividend might be strengthened by comparison to India that seems to have created a strong middle class while leaving 75% of the population in poverty.
- P40-41; I felt dissatisfied with this section; it is a very important topic and may benefit from a box that lays out the arguments of the global food system versus meeting the needs of communities or the public; global control of supply chains might need some disruptive technology to shake them up
- P 41, lines 27-36 are important points but this section seems out of place
- P 41, lines 38 + : it might be worth saying that waste can be reduced either by more effective production and transport (less wasted in the first place) or by using waste streams as inputs to other industrial processes (capturing benefit from some of the inevitable waste)
- P 45 – this section might want to reference the paper on aging farmers in Australia by Neil Barr – found here: https://rirdc.infoservices.com.au/items/14-003 It is an interesting look at issues (or non issues) associated with aging farmers – not all doom and gloom
- P-46, line 27-32 and page 47, line 5-10: text repeated
- P59, Table 1 – I struggled to understand the last column – sometimes the sector was most at risk, sometimes it did not make sense (see the first example of micro-nutrient deficiency – why is the smaller holder sector at risk?)

107. Representación Permanente de México

La Representación Permanente de México agradece el envío primer borrador del informe “Desarrollo agrícola sostenible para la seguridad alimentaria y la nutrición, incluyendo el papel de la ganadería”, elaborado por el Grupo de Alto Nivel de Expertos en Seguridad Alimentaria y –en atención a la solicitud del Grupo- se permite transmitir los siguientes comentarios de sus autoridades nacionales:

- El documento cumple de manera integral respecto al tratamiento de las diversas áreas para poder tener acceso a los alimentos, con objeto de lograr la seguridad alimentaria. Asimismo, cumple con el objetivo propuesto de dar a conocer la importancia del rol del sector ganadero en el desarrollo sustentable agrícola para garantizar la seguridad alimentaria y nutricional de las poblaciones.
- En el informe se establecen de manera concreta los sistemas de producción ganadera actual y los efectos que estos han tenido en los aspectos económicos y ambientales; sin embargo, dada la importancia que tienen los alimentos de origen animal en el consumo de la población y de sus beneficios en el estado de nutrición para combatir la desnutrición y algunas deficiencias nutricionales de los individuos vulnerables, resulta necesario incluir al sector ganadero en el marco de la agricultura sustentable.
- Se reconoce a la dimensión social de la sustentabilidad como la más complicada de lograr, ya que se encuentra constituida por una amplia gama de determinantes globales, las cuales se diversifican en cada país lo que complica su estudio y comparación.
- El informe resalta el reconocimiento de la salud y la alimentación humana como un aspecto continuo de la salud del medio ambiente, por lo que se considera que el desarrollo
sustentable agrícola y ganadero garantiza la seguridad alimentaria y nutricional de las poblaciones humanas, así como el cuidado y mantenimiento de sus ecosistemas.

- La inclusión de los estudios de caso en el informe facilitará a los tomadores de decisiones y otros interesados en seleccionar y adecuar una estrategia en este contexto.

Recomendación:

- El capítulo 3, sección 3.4.2 no debiera enfocarse únicamente a las enfermedades infecciosas ocasionadas por el consumo de los productos de origen animal, por lo que se estima que en dicho apartado se debe hacer referencia al consumo excesivo de ciertos alimentos que están vinculados con el desarrollo de la obesidad y las enfermedades crónicas no trasmisibles, ya que si el objetivo es buscar la seguridad alimentaria y nutricional, se estima de especial importancia resaltar los efectos adversos en la salud por el consumo inadecuado de estos alimentos.

Mucho se agradecerá tomar en cuenta estas aportaciones al proyecto de informe.

108. United Nations Standing Committee on Nutrition

Thank you for the opportunity to comment on this zero draft of the new HLPE report on Sustainable Agricultural Development for Food Security and Nutrition including the Role of Livestock.

We welcome the systemic approach that is taken, looking at sustainable agricultural production at its interface with climate change and aspects of socio-economic development. The report also links agricultural food production with nutrition and health outcomes. With this regard, we would like to submit the following proposal, as we believe they could further strengthen some of the aspects addressed in the report.

The Second International Conference on Nutrition (ICN2) Rome Declaration recognized that Food and agriculture systems, including livestock production systems, need to be addressed comprehensively through coordinated public policies, taking into account the resources, investment, environment and people' (Rome Declaration para 14. e). We would like to draw the attention to the commitment made by Member States to increase investments for effective interventions and actions to improve people's diet and nutrition (Commitment 15b) and to empower people and creating an enabling environment for making informed choices about food products for healthy dietary practices (Commitment 15h).

With this regard, the ICN2 Framework for Action gives concrete recommendations for sustainable food systems promoting healthy diets, and the recommendations 8 to 12 are particular relevant for this HLPE report of which we would like to state the following two in particular as they address the aspect of nutrition sensitive agriculture and diversification of food production and appropriate production of animal-source products:

- Recommendation 8: Review national policies and investments and integrate nutrition objectives into food and agriculture policy, programme design and implementation, to enhance nutrition sensitive agriculture, ensure food security and enable healthy diets.
- Recommendation 10: Promote the diversification of crops including underutilized traditional crops, more production of fruits and vegetables, and appropriate production of animal-
source products as needed, applying sustainable food production and natural resource management practices.

**Nutrition sensitivity of sustainable agriculture**

We would like to suggest more language on the nutrition sensitivity of sustainable agriculture including livestock. As the report states, despite progress, multiple forms of malnutrition remain pervasive around the world. Attaining Sustainable Development Goal 2 (SDG2) and especially its target 2.2 of ending malnutrition in all its forms, which includes achieving the Global nutrition targets adopted by the World Health Assembly and the nutrition targets included in the non-communicable disease targets, will need more concerted efforts and contributions from multiple sectors beyond nutrition/health, and agriculture including livestock is one major sector to play its role in this.

Referring to the urgently needed shift towards sustainable food production and healthy food in order to sustainably feed the over 9 billion world population in 2050, this HLPE report will be a key element for translating the current knowledge and ambitions in the wake of the ICN2 and the new agenda 2030 into concrete policy recommendations for multistakeholder action to aim at changing the way we produce food and ensuring that the production meets people’s needs and enables a healthy diet.

**Policy coherence**

We propose more and stronger language on the need for policy coherence. Policy coherence for sustainable development is an approach designed to help ensure that actions taken to achieve different policy objectives (e.g. in agriculture, nutrition, health) can support rather than undermine each other. It focuses particularly on ensuring that policies promoting economic growth (like in agriculture etc) are better linked with those focused on social aspects of development and human rights, and this includes nutrition. We would like to suggest that the report could be stronger on the need for policy coherence for nutrition-sensitive agriculture, the need for agricultural production and policies to be responsive to the nutritional needs of people.

The adoption of the SDGs in 2015 creates an important opportunity for greater coherence between economic and social development goals. Target 17.14 of the SDGs is ‘enhance policy coherence for sustainable development’.

With this regard we also like to refer to the final recommendations of the LiveWell for Life project (a pioneering project which aims to contribute towards the reduction of greenhouse gas emissions from the EU food supply chain, and demonstrate what sustainable diets could look like for different European countries). The final report recommends the development of more coherent and integrated policy frameworks with the aim to link up food relevant policies in agriculture, health and environment.


**Trade**

We recognize that the current draft mentions that there is a role of trade and markets in fostering sustainable development and improved food security and nutrition. We would like to suggest further elaborating on this important and often neglected aspect, especially of the role of trade and its contributions to food security and nutrition outcomes.
The 2014 Rome Declaration of the ICN2 identified trade policy as one aspect of economic development that could play a greater role in contributing to fostering food security and achieving nutrition objectives. Trade policy is also included as a cross-cutting strategy for development throughout the SDGs.

With this regard we would like to refer to a forthcoming UNSCN discussion paper that will be published in the second week of December 2015. The paper has been written by Dr Corinna Hawkes and underwent a wide consultation process:

With a nutrition-centric perspective, this discussion paper takes a first step towards exploring the question: What actions do policy makers need to take next to enhance coherence between trade policy and nutrition action? Given the emphasis of recent and current trade policy on opening up trade, it focuses on policies to liberalize trade through global and regional agreements.

The paper provides an overview of the objectives of nutrition action and of modern trade policy and explores the potential for both coherence and incoherence between trade policy and nutrition action. It highlights four actions policy makers can take to enhance coherence between trade policy and nutrition action: 1) the development of analytical tools that countries can use to conduct context-specific analysis of coherence between trade policy and nutrition action as relevant to their own populations; (2) the identification and implementation of complementary policies to enhance synergies and manage risks between trade policy and nutrition action; (3) build stronger capacity for cross-sectoral coordination; and (4) improve governance of policy–making processes. The paper ends with eight specific recommendations for key actors relevant to trade and nutrition.

With regard to trade we would like to propose the following:
On page 65 line 47, where the report addresses trade and food security, we would like to propose to also pay explicit attention to nutrition. Decisions made about trade policy can be supportive of nutrition objectives, and they can also undermine nutrition objectives. Therefore, a better understanding of the opportunities and the risks presented by trade policies for nutrition is needed. Relevant tools need to be developed in order to be able to assess the impact of trade policies not only on food security but also on nutrition and vice versa.

Furthermore, we suggest to take up this point under the Recommendations on page 85 point 14: We would like to propose to especially address the need to enable and motivate policy coherence also with regard to trade and nutrition. In this regard it should be included that better analysis of the coherence between trade policy and nutrition action to both enable a common understanding of the opportunities and risks presented by trade policy for nutrition action (and by nutrition action for trade policies) and to identify complementary policies to enhance synergies and manage risks. This is needed for international and regional trade agreements, but most importantly, at the national level at which trade policies are actually implemented and people experience food insecurity and malnutrition.

**Association between meat consumption and noncommunicable diseases.**

We would like to draw the attention to a paper recently issued by the International Agency for Research of Cancer (IARC) - a WHO specialized agency - on the risks of the consumption of red meat
and processed meat. The report highlights a link between processed meat and colorectal cancer, and red meat and pancreatic and prostate cancer. This adds to the existing evidence base on the link between meat consumption and noncommunicable diseases, and we would like to suggest including this in the report.


Furthermore, on this topic, the HLPE zero draft report seems to give unclear messages concerning the link between red meats and human health. While in some places the report states that there is insufficient evidence (page 28 (lines 23-24 and page 41 lines 27-29) in other parts the report recognizes a link between consumption of red meat and NCDs (for instance, on page 82 lines 14-16, p. 51 lines 11-15, and page 17 lines 49-51). We would like to suggest expressing in a more consistent way the messages given on the link between consumption of red meat and health outcomes throughout the paper.

In addition, we also like to highlight the following very relevant reference: WHO/FAO. 2003 Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series, No. 916. This technical report describes global and regional food consumption patterns and trends, and gives clear recommendations for nutrient intake by population groups for the prevention of noncommunicable diseases. The experts looked at diet within the context of the macroeconomic implications of public health recommendations on agriculture, and the global supply and demand for foodstuffs, both fresh and processed.

**Concerning projection studies:**

As stated in the HLPE draft report, “Demand for livestock products in the future could also be moderated by socio-economic factors such as dietary and human health concerns and changing socio-cultural values” (page 43, lines 47-49). With this regard we like to refer to a UNEP report published in 2010, which addresses the question of sustainability of the Western high meat diet. The report addresses the increasing environmental impacts from agriculture due to population growth, increasing consumption of animal products, and outlines that substantial reduction of impacts would only be possible with a substantial worldwide diet change, away from animal products.


Another project relevant with this regard is the ‘LiveWell for LIFE’ project that addresses this issue of major importance to society: how can we change our food consumption patterns to achieve lower environmental impacts and better health that will benefit us and our planet? Their report outlines how future food systems should be driven more by demand and social innovations in a number of directions such as community-supported agriculture and short food chains, responsible sourcing policies from schools and public administrations, urban vegetable gardens etc.
Nutrition objectives (chapter 3)

The HLPE draft report addresses food security and nutrition objectives especially in chapter 3 and mentions these also in some other places in the text. We would like to suggest to further spell out what these objectives are. Especially with regard to nutrition, we would like to suggest to further specify these objectives in light of existing agreed targets.

Important references here include:

Examples of concrete nutrition objectives could include the following. From a nutrition perspective, sustainable agriculture should contribute to improved nutrition. This means that agriculture and food policy should be coherent with actions that enable and motivate:
- All people to consume adequate, safe, nutritious, diverse, healthy diets and safe drinking water all year round.
- All people to have an adequate intake of micronutrients such as Vitamin A, iron and iodine, especially during periods when nutrient requirements are specific and high (e.g. pregnancy, infancy, early childhood, or during illness).

It also means agriculture and food policies are synergistic with meeting intermediate outcomes along the pathway of nutritional improvement such as:
- Women are empowered.
- People are educated and knowledgeable about positive nutrition behaviours.

Furthermore, the outcome (page 45 line 32) named ‘other outcomes’ should better be labeled ‘food safety outcomes’. In addition, we would like to suggest an additional bullet on ‘nutrition outcomes’.

Production of fruits and vegetables as important element of a healthy diet

A healthy diet contains among others also fruits and vegetables, nuts and whole grains. The practical advice for adults regarding fruits and vegetables is that eating at least 400 g of fruits and vegetables per day reduces the risk of noncommunicable diseases. Ref is made to the WHO publication on healthy diet that should be included in the HLPE report. We would like to suggest seeing this issue addressed in some details.

Also in line with the ICN2 recommendations, the report should address this topic and how sustainable agricultural production can ensure that the relevant amount of fruits and vegetables that are essential part of a healthy diet are produced and can be made available to consumers.

Data gaps – food consumption

On important data gaps that need to be addressed, we like to add the need for more and regular data on food consumption. Reference is made to the joint statement of the UN agencies with a mandate in nutrition on the need to include the women’s dietary diversity as an important priority indicator into the SDG framework.

As malnutrition has persisted in many populations despite sufficient quantities of food available, the quality and diversity of foods consumed are increasingly recognized as critical for a healthy diet and positive nutrition outcomes. Indicators of individual-level diet diversity capture important information on diet quality and adequacy for women. Moreover, recent studies emphasize the negative association between dietary diversity and stunting. The recommended priority indicator of adequate diet quality is: Minimum Dietary Diversity for women of reproductive age (MDD-W). These data are essential to better be able to link food production to the need of the consumers and to enable a healthy diet.


Food safety

We like to reinforce the Recommendations from the ICN2 Framework for Action on food safety, notably the following ones and would like to suggest to adequately incorporate them into the recommendations of the HLPE report on age 85.

- Recommendation 53: Develop, establish, enforce, and strengthen, as appropriate, food control systems, including reviewing and modernizing national food safety legislation and regulations to ensure that food producers and suppliers throughout the food chain operate responsibly.
- Recommendation 57: Develop and implement national guidelines on prudent use of antimicrobials in food-producing animals according to internationally recognized standards adopted by competent international organizations to reduce non-therapeutic use of antimicrobials and to phase out the use of antimicrobials as growth promoters in the absence of risk analysis as described in Codex Code of Practice CAC/RCP61-2005.

Regarding the final recommendations on page 83:

With this regard we like to refer to the conclusions of the ICN2 roundtable on nutrition in the post 2015 development agenda. This roundtable had put into sharp focus the linkages between nutrition, food and agricultural systems. And one of the five key messages was that the following: “The nutrition community needs to clearly define what is meant by “adequate nutrition” across societies, age groups, genders and health conditions so that nutrient needs and forecasting for food security can be appropriately determined”. We would like to highlight that it is also the role of other sectors like agriculture, to pro-actively demand these inputs to be able to make their policies more sensitive to the nutritional needs of people and produce in a sustainable way the foods that enable a healthy diet. Therefore we recommend including this in the final recommendations.

Finally, please find also some more specific comments on wording of certain issues in the text:
• **Malnutrition** manifests itself in many different forms, including undernutrition, overnutrition and micronutrient deficiencies. It is not always correctly worded in the text that malnutrition includes overnutrition. E.g. page 85 line 35, where it says ...malnutrition and overnutrition......

• Furthermore, **obesity** is not a noncommunicable disease. It is a nutritional risk factor for NCDs, notably for diabetes. This needs some correction on page 24 line 33.

• **Reference on ICN2 outcome documents** - The ICN2 was jointly convened by FAO and WHO. The reference to the ICN2 outcome documents should read correctly (page 87 line 51):

With best regards
The UNSCN Secretariat Team

109. **Richard Young, Sustainable Food Trust, United Kingdom**

General comments

The Sustainable Food Trust (SFT) welcomes the opportunity to comment on a draft of the HLPE’s important report on food security and the role of livestock. The report touches on aspects of sustainable agricultural development in relation to food security and livestock, and gives some insights into the issue of sustainability in livestock farming. But our view is that it fails to recognise the key components of livestock systems which are sustainable over long periods of time, and therefore provide reliable food security, and the components of livestock systems which are not sustainable because they result in high levels of pollution, progressive land degradation, or there is high use of non-renewable resources, all of which mean that ultimately such systems, even if currently the most productive, are not sustainable. Most significantly we feel the report fails to consider the key issue implicit in the title – what is the role of livestock in the sustainable development of agriculture for food security? In order to aid such considerations we feel it would be helpful if the authors were to give some consideration to timescale. Over what period do they feel the report covers, the next a decade, 50 years, a century?

While there are a number of issues we feel the authors should expand and/or reconsider, we welcome the fact that the report includes several references to human health impacts, animal welfare, gender and equity, which build on a good body of research on these topics.

The framework on page 22 helps to identify key trends, challenges and pathways/responses around which the report is structured. However, some critical components of the agri-food system are either
not included in the framework (land use change, natural capital, such as finite fossil fuels used in the production of nitrogen fertilisers, and mineral resources used in agriculture) or are not given detailed consideration throughout the report (biodiversity, unfertilised grassland soils as an important methane sink, for example).

Given that most of the existing analyses comparing high-input systems with more sustainable agricultural systems tend not to account fully for the manifold benefits agriculture can provide (this applies particularly to grazing livestock), we recommend referencing other studies (see the reference section) for a critical assessment of additional research to which the draft report should refer.

From a methodological perspective, we agree that the analysis of challenges should be related to the four broad categories of livestock systems identified in the report.

Another of our key concerns about the report is that it too readily accepts the conclusions of earlier FAO and other reports without carefully scrutinising these from the specific perspectives of this report: food security and the role of livestock production. While the report pays lip service to the issue of land degradation, it completely fails to recognise the extent to which this threatens global food security and as a result fails to recognise adequately the extent to which many current trends aimed at increasing productivity are through their negative impacts on soil carbon, soil structure and soil erosion simultaneously reducing the potential for long term food security.

Our submission supports many aspects of the report but it also challenges a number of fundamental points, which the authors appear to accept unquestioningly.

Main Points

1. We do not have a problem with the balance of the report, however we would like to see the authors take a more questioning look at some of the issues they cover, including a number of additional issues and refinements, as detailed below, then draw their key conclusions together more into an integrated and meaningful vision for the future. As it stands the draft report comes over as a number of unconnected observations, some of which are at least partially contradictory.

2. Overall, the report acknowledges the importance of grasslands for rural livelihoods (page 32 lines 14-42; page 62, lines 32-42; Box n.8, 11,16), prevention of soil degradation and improvement of soil fertility (page 52, lines 23-29; page 65 line 6-9). However, it fails to take these issues into account adequately when comparing the sustainability of grazing livestock with the sustainability of both grain-fed monogastics and grain-fed ruminants. We recommend that greater emphasis should be given to the scale and significance for food security associated with existing levels of land degradation. The authors are likely to be aware that a recent study calculated that land degradation is already costing between $6.3 and 10.6 trillion dollars per year Stewart (2015). We also feel that greater consideration should also be given to the potential contribution of grassland, both permanent grassland and temporary grassland integrated with crop production, to climate change.
mitigation. Furthermore, rather than simply relying on other reports, including other FAO reports, the authors should take their own look at the science and the source data on a number of key issues, including the accuracy and balance of widely quoted estimates of the contribution of livestock to greenhouse gas emissions and the often overlooked, small, but nevertheless significant value of the soils under undisturbed and unfertilised grassland as a methane sink.

The authors assume that the 14.5% figure for the contribution made by livestock to greenhouse gas (GHG) emissions, derived from FAO’s study (2013), represents the GHG emissions from livestock “when accounting for all direct and indirect emissions along the production chain, including land use change, feed production and transport” (page 8, line 49). However, in order to develop policies to ensure food security and sustainable livestock production, GHG emissions associated with land use change really need to be differentiated from those to do with land use itself and considered separately, in order to ensure that GHG emissions associated with LUC are accurately apportioned between crops and livestock and between crops for humans and crops for livestock. This, in part, is because the FAO (2013) report looks at only one side of the LUC equation - the losses of carbon associated with the conversion of forest or savanna to food production - and even this only incompletely.

The study, for example, considers emissions from land use change (LUC) only for Latin America and the Caribbean, not for the US, the EU, Asia, Africa or anywhere else, and considers these emissions only over a single recent decade (see page 106 of the report). This was also a period during which rates of LUC from rain forest and the virgin and pastoral regions of the Brazilian Cerrado were particularly high.

From the perspective of the loss of forest and virgin grassland to crop production and improved grassland this is not particularly unreasonable since (unknown trends in Africa excepted) a high proportion of such land use change was taking place in Latin America at the time. However, this highly influential study gives no consideration to the losses of soil carbon and nitrogen when existing agricultural grassland is converted to crop production, as is still happening in many parts of the world (an opposite trend to the one taking place in Latin America when considering the relative merits of grazing and grain-fed livestock), or the sequestration potential when cropland is converted to grassland. Significantly it also fails to take any account of more historic, including recent historic, LUC elsewhere in the world where conversion of grasslands and forest have predominantly been for the cultivation of crops for direct human consumption, such as in California, or where they have been predominantly for grain-fed beef production, such as in the US mid-West. As a result the report fails to distinguish adequately between different production systems, which could be encouraged or discouraged; and where it does make distinctions to a limited extent, reaches in our view largely misguided conclusions because of its failures to take into account a fuller picture of the multiple issues.
Drawing on the same study by the FAO, for example, the report argues that feed production accounts for 45% of sector emissions (page 52, line 6). Yet, Van Middelaar et al. (2013) found that excluding emissions from the conversion of grassland to cropland for feed production results in an inaccurate estimation of GHG emissions from feed production in intensive livestock systems. In particular, when converting grassland to cropland, emissions result from changes in soil carbon, changes in above- and below- ground carbon, and changes in soil nitrogen (Van Middelaar et al., 2013) - nitrogen which is lost as reactive nitrous oxide.

As a further example, the report gives no consideration to the loss of methanotrophic bacteria, which takes place when both forest and grassland are converted to cropland or fertilised grassland. Yet there is a substantial literature indicating that such changes effectively eliminate these bacteria, which together across all soils constitute the soil methane sink Willison et al (1995), Nazaries et al. (2013). At least one review, previously noted in an FAO report, Mers and Rogers 2001 has downplayed the significance of the soil methane sink, however, our view is that this is because the authors failed to recognise the extent to which the two key sinks where methane is oxidised were able to keep atmospheric concentration broadly stable throughout most of human history prior to the industrial revolution. Current estimates put the soil methane at only 5% of the overall methane sink, but since methane levels in the atmosphere have been rising at only 0.1% during the last decade whereas they were rising at about 1% during the 1970s IPCC (2007), cited by Nazaries et al. (2013). Globally 37.6% of the total land area is in agricultural production Roser 2015. However, much of that land is bare rock or desert. As a result it is likely that more than 50% of the world’s fertile soils have already been converted to agriculture and that a high proportion of these are being cultivated and/or receiving applications of ammonium-based nitrogen fertilisers, the two actions which suppress methanotrophic bacteria.

As a result it can be argued that the reductions in the soil methane sink brought about by LUC and changing agricultural practice on land producing crops to pigs, poultry and grain-fed beef could on their own account for the increased atmospheric concentrations of methane in the atmosphere. In this context we feel it is important to point out that while methane is, of course, a potent GHG and IPCC may well underestimate this due to it’s relatively rapid breakdown a stable ruminant population in extensive grass-based systems neither increases the total amount of methane in the atmosphere, nor the total amount of carbon in the atmosphere, it simply recycles carbon fixed by photosynthesis in the plants they eat, a proportion of this through methane, which breaks down to carbon dioxide and water within 8-12 years. On the other hand methane lost to the atmosphere during natural gas extraction or conversion to nitrogen fertiliser, and methane lost to the atmosphere from coal production to provide power for nitrogen fertiliser manufacture, all constitute additional amounts of methane and carbon added cumulatively to the atmosphere.

The reports argues that “extensively grazed ruminants are more GHG-intensive than other sources of animal protein such as poultry, pigs or fish” (page 52, lines 16-18). While this is undoubtedly true at a direct emissions levels, we believe that an analysis which included the historic LUC emissions
associated with the conversion of grasslands to croplands and the impact of this on the soil methane sink would lead to different conclusions. Grassland soils are a significant store of carbon, with global carbon stocks estimated at about 50% more than the amount stored in forests globally (FAO, 2010). There is an interesting ongoing debate on this issue, with some researchers arguing that grassland cannot continuously sequester large amounts of carbon (Falloon and Smith, 2002), and others claiming that grasslands have considerable potential to sequester additional carbon and may continue to act as a carbon sink for up to 100 years (Poeplau et al. 2011), thereby also contributing to climate change mitigation. A significant strand of the scientific literature demonstrates that by making allowance for sequestration and storage, major GHG offsetting occurs in low intensity grazing systems (see, for instance, Pelletier et al., 2010; Rotz et al., 2010).

In some parts of the draft report, it is claimed that the shift from ruminants to monogastric animals, especially poultry, could help to reduce pressure on the need for additional land for agriculture, improve productive efficiency needed to meet the expected increase in meat consumption, and mitigate the sector’s emissions (page 62, lines 22-28; page 63, lines 25-27). Our view is that grazing livestock at appropriate stocking density is central to the development of sustainable food systems because of the paramount role of grass in reversing soil degradation and rebuilding soil carbon and structure. In longterm studies at Rothamsted Research in the UK researchers have found that cropping systems inevitable lead to soil carbon loss, whereas the conversion of cropland to grassland leads to soil carbon gains Johnston et al. (2009). As such we feel great care needs to be taken when drawing conclusions on this issue, since the balance of cropland and grassland and the potential (largely beneficial) changes that could result from a better integration of arable cropping and grassland are also of central importance to other aspects of food security. Studies have shown that mixed farming systems can provide a range of food and non-food products, while helping to mitigate climate change. For example, a study by Strassburg et al. (2014), demonstrated that improved use of cultivated pasturelands in Brazil would suffice to meet demands for meat, crops, wood products and biofuel until at least 2040 without further conversion of uncultivated land, while contributing to climate change mitigation by increasing soil carbon levels. The paper includes suggestions on how to increase the productivity of pasturelands – e.g. using improved fodder grass selection, incorporation of legumes, rotational grazing, introduction of mixed systems, improved breed selection, reproductive management and earlier slaughtering. We feel these issues should have been considered and discussed in Chapter 4 of the draft report.

Given the authors’ assertion that intensity of grazing livestock is expected to increase (page 35, line 21-23), it would be useful to see the possible pathways of intensification in the report – i.e the author’s vision for how intensification can be achieved in a sustainable way. Lemaire et al. (2015) show that there is significant potential in an integrated crop-livestock system, for grazing to be intensified to a threshold level without harming the environment. Soussana and Lemaire (2014) suggest that the discrepancy between environmental and production goals in mixed systems can be significantly reduced by combining intensification with mitigation by using a range of options including pasture restoration, deep-rooted grasses and grass-legume mixtures.
Despite the draft report’s claim to examine the linkages between the livestock and crop sectors (page 18, line 30), the arguments and references in support of this claim are not made clear in the report. We suggest that more recent references should be used and that the ideas related to (or vision about) livestock and crop sectors linkages should be fleshed out in more detail. We also feel the report must acknowledge and make clear to readers that the 14.5% figure for the contribution of livestock to GHG emissions is an average global figure and when deciding what form of agriculture will bring greatest food security and the most sustainable use of livestock, it needs to be recognised that GHG emissions from different production systems, even with the same livestock species, vary greatly between countries, between different regions and even between different farms in some circumstances.

As an example, total GHG emissions in the UK associated with UK agriculture in 2013 (the most recent year for which final figures) are available, account for 9.4% of UK GHG emissions, Department of Energy & Climate Change (2015) However, despite some LUC in both directions on different areas of land (i.e., some land converted to crop production, some returned from crop to permanent grassland, some to forest) LUC resulted in a net 5% reduction of GHG emissions meaning that taken together, as was done by the FAO for parts of Latin America in its 2013 report, net UK emissions were 4.4% for agriculture as a whole, not 14.5% just for livestock. These figures do not include imported livestock feed or transport, whereas the FAO report does include these. They also do not include the GHG emissions in other countries associated with the large quantities of food imported for direct human consumption, However, hey do largely reflect the GHG emissions associated with food production in the UK, and reason the Sustainable Food Trust sees this as a major issue is because the FAO report (2013) effectively encourages the trend of continuing increase in chicken consumption and continuing decrease in beef and sheep meat consumption. This is borne out by consumption data, while a recent YouGov survey undertaken for the Eating Better Alliance found that only 35% of the UK population is willing to consider reducing meat consumption. As a result negative publicity about beef and sheep meat production and consumption inevitably increases poultry (and sometimes pork) consumption. Yet the farming of these species depends entirely on grain production, which is heavily dependent on non-renewable resources, such as fertilisers and in some parts of the world, fossil water, and is a primary cause of land degradation. The UK is ideally suited to grass production and much of its farmland is suitable for no other form of food production, as such these distortions move the UK further away from food self-sufficiency, increase dependence on imported meat, including chicken from South America and Thailand, pork from Denmark, the Netherlands and Germany and beef also from South America, generally reducing the sustainability of livestock production in the UK.

This is happening because the 14.5% from the FAO report is taken by most campaigners, policy-makers and politicians to be an absolute figure, which applies universally, leading to a widespread belief that while cattle and sheep numbers in the UK which have fallen in recent years anyway, there is still a need for numbers to be reduced dramatically and that grassland should be ploughed for
crops. Indeed the net total area of grassland in the UK (including rough grazing) has fallen from approximately 73% of UK farmland to approximately 66% of UK farmland within the last decade. Despite this influential campaigns still use the 14.5% figure to urge still greater falls in ruminant numbers and yet greater conversion of grassland to crop production in the UK, much of which is to support increased consumption of grain-fed meat. Incredibly such arguments have even been made in the Yorkshire Dales Yorkshire Post (2015), where the loss of grazing livestock would have a severe negative impact on biodiversity, and the conversion of grassland to cropland would have a severe long term negative impact on the landscape, the environment and the atmosphere,

We also need to point out that the FAO report, in common with many other reports, attributes a high proportion of the LUC in relation to soya production in South America to livestock. While we are not in favour of intensive livestock production systems based on grain and high protein use, not least because of the negative human health impact of the associated ammonia emissions from confined animal feeding operations, we nevertheless feel it necessary to point out that because only a small percentage of soya protein is used for human consumption and because oil from soya accounts for only a small percentage of the crop, there is a tendency for a high proportion of the LUC associated with soya production in South America to be associated with livestock in studies and reports which consider this issue. However, it should be noted that most of the soya oil (for instance approximately 75% of US soya oil according to the USDA) is used for direct human consumption, while virtually all of the remainder is used for biodiesel, cosmetics and for minor direct human-use products. Given the ever-growing demand for vegetable oils in general and the huge environmental and biodiversity damage being caused by the increasing demand for palm oil, it is probable that even if livestock were not consuming soya meal, demand for soya oil would not significantly decline. All that would happen is that the price would increase greatly. We feel this issue should be recognised in the report, even though we are not aware of anyone else making a similar argument before.

There is also another dimension to this issue, which we feel must be recognised. A particularly significant aspect of this is that it is widely understood that grazing livestock in drylands, on which approximately 1 billion people depend for their subsistence, account for a disproportionately high percentage of GHG emissions per kg of meat or litre of milk produced because the grass is of low nutritional content and growth rates are very low. While there is considerable potential to improve the quality of herbage and productivity through the introduction, in some areas at least, of deep-rooting grasses and deep-rooting forage legumes, the retention of livestock in such regions is absolutely vital since they provide a vastly higher degree of food security in such situations than crop production, which can fail completely. There are however, two very different but equally import issues, which need to be recognised in the report.

First, there is a tendency for pastoralist communities to be displaced by major development projects, for example, in order to make way hydro-electric schemes and irrigated crop production. One of the most recent of these has been the Gibe III dam on the Omo river in Ethiopia where 200,000 pastoralist tribes are likely to be affected Perry (2015a). While there are multiple factors behind such
developments, misguided concern about the methane emissions from animals in pastoral systems strengthens the hands of those who push for such developments, which in the case of Gibe III are expected to have a negative impact for up to 500,000 people when (literally) downstream impacts are also considered. The fact that such developments are often not even sustainable in the medium-term is demonstrated by study which found that on average 2,000 hectares of fertile land has been lost every day for the last 20 years due to soil salinization Qadir (2014), much of it due to inappropriate irrigation programmes where high evaporation rates in hot regions cause mineral salts to accumulate in top soils.

The second issue is that while the use of average global emissions, which include the significantly higher than average GHG emissions per kilo of meat and litre of milk in the drylands provides a good campaign tool to raise awareness about the need to moderate meat consumption overall, in areas where emissions are actually much lower, this can lead to misguided changes in land use, livestock populations and meat consumption which increase, rather than decrease, overall emissions, whilst also having other deleterious effects on soil degradation and biodiversity, as detailed above.

3. A more general criticism is that the draft report gives little consideration to the importance of biodiversity for global food security, livelihoods and varied diets, as well as to the positive nexus between low intensity grazing livestock and biodiversity. Despite the framework including biodiversity as a component of the agri-food systems (page 22), there are only a handful of general references to biodiversity. Biodiversity should be explicitly addressed. This could be done in Chapter 3 where the authors analyse all the components of agri-food systems. We recommend inclusion of the following issues:

(a) Food security: there is general consensus on the nexus between biodiversity and food security, see for instance Hoffmann (2011).

The authors of the draft HLPE claim that a shift from grazed ruminants to monogastrics would result in a more sustainable livestock sector (page 52, lines 16-18), because grazed ruminants are more GHG-intensive than poultry and pigs. In addition to our points above in relation to the soil methane sink, land degradation and the fact that there are large regional variations in the actual emissions when more complete data on LUC is taken into account, we suggest a broader view is needed on food security and sustainability, beyond the single focus on reducing direct GHG emissions. In particular, it should be considered that the current shift towards more intensive agricultural systems based on poultry and pigs favours international transboundary breeds and leads to a loss of local breeds and a narrowing of the gene pool which could at some point in future become of particular importance, should a new disease or disease strain develop, to which currently popular breeds are vulnerable. Diversity in livestock breeds is also needed to reduce the impact of existing disease pressures and to maintain a gene pool which could be of invaluable use to breeders in years to come for a wide range of reasons. This trend towards only high
productivity animals from a narrow range of breeds also negatively affects variability in human diets and food security, resilience and rural livelihoods (Hoffmann and Baumung, 2013).

(b) The positive impacts of low intensity grazing systems on biodiversity, including the symbiotic relationships between grazing livestock and wildlife, and wildlife dependence on grazing animals and the grassland they graze (Stoate et al., 2009).

Importantly, unimproved flower-rich grasslands play a crucial role for many bumblebees species. This has major significance for food security since wild pollinators, especially bumblebees are more important for the pollination of certain food crops than honeybees. Some of them also have an extremely short foraging range. Goulson et al. (2005) found that the decline of many bumblebees species can be ascribed to the decrease in unimproved flower-rich grasslands. They show that the decline of bumblebees in the UK is especially related to late emerging species which are critically short of nectar and pollen sources from late May onwards, after the major commodity crops such as oilseed rape have flowered. These species have specialized diets and mainly feed on Fabaceae, in particular *T. pretense* and *L. corniculatus*, species associated with unimproved grassland. Consistently, Carvell et al. (2006) confirm that the decline of pollinators is associated with the switch from hay meadows to silage, and from species characteristic of less fertile, semi-natural habitats, such as calcareous grassland, to fertile habitats. Woodcock et al. (2014) showed that the presence of legumes and forbs also increase the provision of flowering heads for insect pollinators. This is particularly interesting in relation to sustainable agricultural development and the role of livestock, since the increased use of legumes in grassland also has the potential to maintain productivity while replacing nitrogen fertiliser, something which would bring significant savings in relation to the GHG emissions associated nitrogen fertilizer production, grassland management and it would also eliminate the ammonia emissions associated with the direct volatilisation of ammonium-based fertilisers.

4. Other components of natural capital the report should consider include: fossil fuels, especially natural gas used as the feedstock for nitrogen fertilisers, reserves of finite minerals, especially phosphate-rich rocks, fossil water used for the irrigation of commodity crops such as corn and soya, which are then fed to intensively housed livestock, antimicrobials and soil biological and microbiological life.

Global reserves of fossil fuels have been estimated to be 35, 107 and 37 years respectively for oil, coal and natural gas by Shafiee and Topal (2009), and 53, 109 and 54 years respectively by a major oil company BP (2015). However, these figures are based on 100% of reserves being extracted and some authors have doubted the feasibility of this due to the technical challenges and concerns about climate change. While further reserves will undoubtedly be discovered, usage rates are expected to
increase, suggesting that within as little as few decades reserves of oil and natural gas could become a limiting factor in food production.

Studies conducted in China, the largest mineral phosphorous fertiliser consumer in the world, in pig and dairy production sectors, demonstrate that intensive systems have a lower phosphorus use efficiency than traditional or grassland based systems (Bai et al., 2013; Bai et al., 2015). There is still considerable uncertainty about how long phosphate reserves will last and what proportion of these can technically and economically be extracted. However, there is widespread recognition that reserves are finite and that a supply gap for phosphorous could occur during the present century, Rhodes (2013).

Fossil water reserves in the US, especially the Ogallala aquifer and fossil water reserves in parts of the Middle East and India and elsewhere have been extracted at rates well in excess of their replenishment rates, resulting in the abandonment of crop production in some regions. In addition, increasing drought in many parts of the world is leading to reduced yields, unsustainable use of ground water resources and abandonment of food production entirely in some cases. Drought is currently having a severe effect in nine regions globally and land degradation which involves the loss of soil organic matter, principally as carbon and nitrogen reduces the water holding capacity of soils and also increases the vulnerability to erosion from heavy rain, Perry (2015b).

There is widespread recognition that antimicrobial resistance is becoming a global problem. No major new families of broad spectrum or Gram-negative antimicrobials have been developed since the carbapenems in the mid-1980s. Antimicrobials are predominantly developed from naturally occurring soil bacteria and fungi, but we have already exploited all the most easily cultured microorganisms, which is why no major new classes have been developed recently. Arguably ‘peak antibiotics’ occurred in the mid-1960s, though this was not recognised at the time. The significance of this is all sectors need to use antimicrobials extremely sparingly to reduce the potential for further large rises in antimicrobial resistance before new and completely unrelated classes of antimicrobials can be developed. At a policy levels the easiest way to achieve this in agriculture would be to reduce the number pigs and poultry kept and increase the number of cattle and sheep because pigs and poultry accounts for a very high proportion of all farm antimicrobials usage, whereas use in grazing animals, such as cattle and sheep is much lower in comparison, Nunan and Young (2015).

It is estimated that 25% of all biodiversity on the planet is underground in the soil. With the aid of new techniques currently under development for culturing the estimated 97% of soil microorganisms which previously could not be cultured there is a vast potential store for the development of new antimicrobials, anthelmintics and other medications. Yet there is a large body of evidence to show that the use of ammonium-based nitrogen has a major detrimental impact on soil bacteria and
radically alters population densities, and the use of water-soluble phosphates has a similar impact on soil mycorrhizal fungi, which are critically important for a healthy soil and the uptake of nutrients by plant roots. In addition, evidence shows that some herbicides can also cause changes in soil chemistry and microbiology.

5. The report includes relevant references to human health impacts, in particular in relation to the importance of animal protein in human diets (page 8, lines 31-37; page 17, lines 38-48; page 28, lines 15-22), food-borne diseases, animal and human diseases and antimicrobial resistance (page 55-58).

In several parts of the report, it is claimed that white meat is healthier than red meat (page 28, lines 22-24; page 68, lines 2-6). We suggest that this widely held belief be reconsidered and revised, since the most compelling evidence of harm is associated only with processed red meat and the small statistical association between red meat overall and cancer does not distinguish between the production methods of the meat, leaving open the possibility that it may be changes in the make up of meat, in terms of fatty acid provides, minerals and anti-oxidants associated with grain-fed meat production which may be prime cause poor health outcomes which are attributed to all red meat without evidence. It is also of note that cancer levels in many developed counties are rising, while red meat consumption is falling. McAfee et al. (2010) suggest that consumption of lean red meat as part of a balanced diet is unlikely to increase risk for cardiovascular disease or cancer, but might positively influence nutrient intakes and fatty acid profiles. Interestingly, concentrations of long chain n-3 polyunsaturated fatty acids, which have many positive health impacts, are much higher in meat from ruminants produced on grass-based systems compared with ruminants produced in intensive concentrate feeding systems (Ponnampalam et al. 2006; Nuernberg et al. 2005), A more extensive and helpful paper on this issue, Daley et al. (2010) reviews the significance of the fatty acid and other micronutrient profiles of beef from 7 studies which compared grass-fed and grain-fed meat.

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References


110. Ren Wang, FAO, Italy

Contribution from FAO to the consultation organized by the HLPE on the VO draft of the report on Sustainable agricultural development for food security and nutrition, including the role of livestock

General comments

Overall scope and approach to the question of sustainable food systems

The report is well written and provides relevant information for policy makers to understand the challenges of sustainability to the livestock sector. However, the question it’s trying to address should be better framed. The current title suggests that the report is addressing the whole of agriculture with a specific focus on livestock. Other subsectors (crop, forestry, fisheries and aquaculture) should therefore be included and the connections/integration between them and livestock should be better explained. This answers the author’s question 3.

The central role of livestock in agriculture is well highlighted yet could be further reinforced by stressing the synergies with other agricultural sub-sectors. For example, cropping systems, timber, aquaculture, benefit from nutrients cycling triggered by livestock. Manure is essential in securing key soil functions such as fertility, physical stability and support that is essential for plant growth. Livestock also turn non edible resources such as grass and other roughages but also wastes from food chains, into edible products. About 25% of livestock feed ration at global level is provided by crop residues (straws and stover) and 8% by agricultural by-products (brans, meals etc.).

The approach to the crop sector could also be improved/completed to include aspects such as the increasing yield plateaus of main staples, the ecological responses to technological solutions (herbicide resistance in weeds in GM crops; increasing costs of inputs, concentration in the breeding and agrochemical sectors, impacts of pesticides and herbicides – including for feed production- on terrestrial and aquatic ecosystems as well as on human health. Some related further insights beyond the Alexandratos and Briunsch report can be found in Conforti(ed) Looking Ahead in World Food and Agriculture. Perspectives to 2050.

Structure of the report

Though the overall structure of the report is good and provides the adequate chapters to address the challenges of sustainability in livestock supply chains, the developments within chapters could be refocused or reorganised. To address sustainable agriculture development, Chapter 1 should be structured around the definition of sustainable food systems (now only provided as footnote on page 21) and the contribution of livestock to food security and nutrition as part of food systems. Chapter 2 (Trends and Drivers) should be structured around identified and documented drivers such as demand for food and livestock products in particular as well as resource scarcity (feed, water, land, nutrient, climate etc.) and market globalisation. Chapter 3 (Challenges), instead of addressing the pillars of sustainability one after the other, should look at them through the lenses of food systems. Finally, Chapter 4 and 5 should provide real action points and proposals (cf point 3 on recommendations).

The focus given to the livestock sector is deserved and appreciated. The Report provides a well described, thorough overview of the challenges, threats and opportunities of the livestock sector with regards to its contribution to World Food Security and Nutrition. It both highlights the role of livestock in FS&N and the risks and threats including those related to climate change, human health,
etc. Regarding the latter, the report (page 17, rows 38 and followings and again in page 28) points out both the positive contribution of livestock (by providing micro-nutrients and essential proteins) and negative impact (contributing to cardiovascular diseases, cancers, etc.) This is actually a question of quantities and balance. This is important and the report should better refer to FAO (and other) recommendations for balanced diets (including animal products) and to quantified recommendations when they exist.

Since the focus on livestock is well explained upfront in the document there may be a need to revisit the title of the report to better show the focus adopted.

The Report concentrates and provides a great number of details, figures and facts in relation with the livestock sector. However, the Report tends somewhat to be repetitive and turn along the document around the same challenges which are coming over and over in each chapter. (growing and changing demand, environmental challenge and natural resources, diseases, number of people depending on livestock. For instance, the fact that “animal products provide 13 % of calories and 28% of dietary proteins” is repeated four times in the report (page 8, page 17, page 26 and page 81). The authors should point this out once but instead of repeating it, provide a more elaborate analysis of this important fact, e.g. looking at trends, geographic differences, etc.

Chapter 4.4 needs to be further elaborated with “responses” providing concrete sets of actions to implement. The case studies need to be shortened and better integrated. Some of the discussion of a conceptual nature in Chapter 1, such as the discussion on the meaning of sustainable agriculture for FSN, the two boxes on sustainable intensification and on food sovereignty debate (boxes 2 and 3, pages 18 to 20) could be shortened or arrive later (for instance in Chapter 4, as pathways).

The report comprehensively mentions all important issues but tends to downplay (though it mentions) the importance of 3 crucial issues:

i. protein input vs protein output efficiency when it comes to livestock feeding strategies;
ii. the Western model of consumption of livestock-derived foods is taken as a comparative baseline, despite recognition of the rise of non-communicable diseases in Western countries;
iii. the FAO 2012 scenarios for 2050 do not consider climate change scenarios and challenged yields and natural resource use.

Insufficient consideration of these points result in an incomplete sustainability vision for the food system, with a bias on production rather than throughout the supply/consumption chain.

The nutrition aspect of the report could be strengthened. The report looks at past trends of livestock product consumption and on projections for the future, including at the ‘anxiety’ of producing enough animal products to respond to the demand by 2050 considering the increased purchasing...
power of the world population. However, this discussion should be enriched by bringing together the various dimensions of the discussion: recommended quantities (e.g. recommended by WHO or FAO) of animal products, the over consumption in segments of the population (and under-nutrition in others); the important of nutrition awareness / education systems to sensitize consumers about the excessive / insufficient levels of consumption and their potential impact on future consumption levels...

The report rightfully points out the cost and benefit of livestock for the planet (cost on climate change but potential mitigation if better systems are followed) and human health (nutrition, both potential costs and benefits) respectively. This is a critical area of debate and strategic choices. For this purpose, more solid cost benefit analyses (on both nutrition and climate change) of various sources of proteins (both vegetal and animal) and of various livestock systems would be contributing to the debate.

There is sometimes the feeling that the report focuses too much on meat when talking about livestock and the report could provide more insight on non meat animal products such as milk, eggs, etc. This is particularly important in countries where culturally meat is consumed in limited quantities (e.g. India) but for which milk / dairy and other products are critical to address their high malnutrition rates. The cultural dimension aspect of nutrition of animal products is neglected in the report. Other animal products (such as edible insects), are also neglected.

**Consolidating livestock specific recommendations**

In order to improve the reach of the report, a limited number of sector’s specific recommendations should be available upfront, as the reader may expect from the title of the report. The current list of recommendation appears too long and a large number of them don’t focus on livestock. We suggest the following recommendations to be considered as priorities, building on the current recommendations from the report:

- **ON DATA, INFORMATION AND KNOWLEDGE (1f +6 +9 + 24):** Increase efforts to improve data collection, analysis and tools on sustainable livestock systems and their contribution to food security and nutrition, including at micro, meso and macro level and taking advantage of progresses made in the area of methodology harmonization, including the use of modelling and life cycle assessments. Existing efforts such as the Global Livestock Environmental Assessment Model –GLEAM or the Livestock Environmental Assessment and Performance Partnership LEAP can be used as examples here.
- **ON PROCESS (1.e and 23):** Provide the necessary institutional and financial support to the range of multi-stakeholder partnerships at national, regional and global level that will be instrumental in ensuring a sustainable growth of livestock and maximizing its contribution to the SDGs (link to the Global Agenda for Sustainable Livestock).
- ON LIVESTOCK PRODUCTION (8): Focus policies and investments to reduce “yield gaps” between the best and worst performers in specific systems and location, i.e. promote the widespread adoption of already available good livestock practices, which is critical to achieving sustainable livestock development and food security, particularly in low income food deficit countries (Gerber et al, 2013)

- ON RESILIENCE: Provide support to livestock food systems to be prepared to respond to shocks and crises (e.g. economic/financial, disease, climate change, etc), which will require working with climate scenarios, building an increased capacity to deal with vulnerability and change as well as mechanisms to support recovery from shocks. AGA’s work on resilience in the African drylands can support this point.

- ON CONSUMPTION OF LIVESTOCK PRODUCTS (18b): Focus policies and investments to foster healthier diets, encouraging increased animal protein consumption in population suffering undernutrition and micronutrient deficiencies and more sustainable levels of consumptions in other regions/countries.

Elements of answer to the specific questions in the cover letter

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

   It is balanced. The authors may wish to integrate the recent findings of the Lancet on red meat consumption, strengthening the argument for balanced diets. Mention of the sustainable diets concept? FAO Sustainable Diets and Biodiversity http://www.fao.org/docrep/016/i3004e/i3004e.pdf

   The strong focus on livestock is largely justified; however, the role of over-fertilization for N2O emissions should be addressed in such a report as well, as there lies a big potential for improvements. In addition, the focus is on the production side and much less so on demand side measures.

   A major defect of the report, which pays special attention to animal-source food, is to neglect seafood (including finfish, crustacean, molluscs and other aquatic animals) as an important source of animal protein and the contribution of seafood sector (including aquaculture and fisheries) to FSN.
Seafood is an important source of animal protein in human consumption (Delgado et al. 2003), and features prominently in the diet of many people; seafood are often easily accessed and affordable. Seafood is especially rich in essential omega-3, long-chain polyunsaturated fatty acids, amino acids and micronutrients, including vitamins, bioavailable calcium, iron and zinc (HLPE 2014, Longley et al. 2014), which all play a critical role in cerebral development, immune defense systems and general health. Small quantities of fish can have a significant positive nutritional impact by providing essential amino acids, fats, and micronutrients that are scarce in vegetable based diets (FAO 2012).

Aquaculture and fisheries provided 141 million tonnes of seafood per year to direct human consumption by world population during 2012-14. Globally, the contribution of seafood to animal protein increased from 15 percent in 1980 to 17 percent in 2011. During the period, the contribution of seafood to animal protein has increased in countries that hosted over 60 percent of world population.

Aquaculture has been the fastest growing animal food-producing sectors. Its average 7.6 percent of annual growth in the past two decades was much faster than livestock (1.7 percent), poultry (4.4 percent), eggs (3.1 percent), and milk (1.8 percent). In the past two decades aquaculture has grown faster than the rest of seafood and meat sector in over 120 countries or territories (85 percent of world population).

The report should be improved by properly recognizing the contribution of seafood and seafood sector (including aquaculture and fisheries) to sustainable agriculture development and FSN.

Seafood should be explicitly treated as part of “animal-source food” (ASF). For example, the sentence in lines 38-40 on page 17 should be modified into “[N]utritionally, meat and other animal products such as milk and eggs and seafood globally provide xx percent of total calories, xx percent of dietary protein, and are sources of vitamins and key micronutrients, several of which are not found in plant foods, thus contributing to optimal nutrition.” (Underlined words are added to or modified in the original text). Adding seafood would make the sentence as well as the entire paragraph in lines 38-48 on page 17 more accurate and comprehensive.


243 Longley et al. 2014. The Role of Fish in the First 1,000 Days in Zambia. IDS Special Collection. Institute of Development Studies, Brighton BN1 9RE, UK www.ids.ac.uk

244 FAO 2012. The State of World Fisheries and Aquaculture. Rome, FAO.

www.fao.org/cfs/cfs-hlpe
– If unfortunately it is decided that the report should narrow its attention to terrestrial animals only, then the term “animal-source food” (ASF), which is widely used yet not clearly defined in the report, should be qualified into “terrestrial-animal-source food” (TASF) in order to be more accurate and avoid confusion.

• The report recognizes livestock production as a resource demanding sector (e.g. the paragraph in lines 16-20 on page 27). In such context, the much lower ecological footprint of aquaculture and fisheries should be noted (Hall et al. 2011245).
  – For example, aquaculture fish convert more of their feed into body mass than terrestrial animals; the production of 1 kg of beef (resp. pork and fish) protein requires 61 kg (resp. 38 and 13 kg) of grain (HLPE, 2014246)

• It should also be noted that:
  – If fish production from capture fisheries would have to be replaced by grazing livestock, this would result in a substantially increased grazing area and increased water extraction at levels which would be difficult and environmentally costly to sustain.
  – When decisions are made with respect to managing water, for instance to irrigate cereals needed for animal feeds, one of the effects could be the reduction of fish production. The net effect might therefore be that less animal protein production.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

In the introduction and throughout the text, environmental issues are mentioned but they could be stronger supported with references such as:

UNEP: THE ENVIRONMENTAL FOOD CRISIS

UNEP: GEO5 Environment for the future we want

UNEP: Avoiding Future Famines: Strengthening the Ecological Foundation of Food Security through Sustainable Food Systems


The structure is ok, but it should become much more concrete when it comes to recommendations, cf. detailed comments; missing aspects: also see the detailed comments, in particular, as just mentioned: demand side aspects and fertilization.

The report should draw information, knowledge and insights about the contribution of the seafood sector to FSN from “The State of World Fisheries and Aquaculture (SOFIA)” (http://www.fao.org/fishery/sofia/en) which is one of FAO flagship publications.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

Well, this approach could be useful, but it is not used that much in the report, in particular towards the end and for structuring recommendations, etc. – thus, if such a structure is proposed, it could be utilized more prominently.

The report should draw information, knowledge and insights from projection and scenario studies on seafood such as:


4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

Regarding projections, you may add some other models which take into account biodiversity, starting from the MEA process, prepared mostly for CBD:

PBL: Roads from Rio+20 Pathways to achieve global sustainability goals by 2050
PBL: The protein puzzle: the consumption and production of meat, dairy and fish in the European Union

CBD: Global Biodiversity Outlook (GBO) 4

See other papers from M. Kok and Rob Alkemade

In 2012, FAO produced the bulky study: Greening the Economy with Agriculture, which review Buisma and Alexandratos projections in light of climate change; this paper must be considered. Furthermore, scenarios that emphasize dietary changes should be included and discussed more prominently (e.g. Stehfest et al. 2009); also other livestock management strategies, such as reduced concentrate feed and grassland-based ruminant production has its potential as a complement to increased efficiency – this could also be described (e.g. Schader et al. 2014).

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

As already pointed out, the consumer behavior side should be covered more in depth and on a similar standing as the production side. Furthermore, some key aspects of crop production should be addressed: N inputs and also climate change impacts on yields (there is one reference Havlik et al. 2015 that evidently presents some scenarios on this, but it is not in the reference list); several publications suggest that these impacts can be considerably negative (e.g. Müller et al. 2010, Challinor et al. 2014, Porter et al. 2014, Müller and Robertson 2014).

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

No, it is just a general suggestion on how to solve any problem: on p 67, it reads as follows: “It is imperative, in first identifying the priority challenges, to articulate them as clear, measurable objectives, then undertake analysis based on sound data and evidence in order to define the potential response options as a prelude to design and implement chosen policies and actions and, finally, to monitor and evaluate the results, which, in turn, could generate another round in the response cycle.” But this is basically common sense to solve any problem. The contribution of such a report would be in providing much more detailed proposal for the specific aspects listed before this section 4.5., namely the challenges and responses – as information is needed on when to choose
which response and what may be its advantages and drawbacks, etc. – maybe assessing this with a SWOT analysis, for example (cf. detailed comments for some further suggestions on how to make this more concrete).

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

Yes, the literature contains thousands of case studies that could serve to illustrate specific aspects – I would suggest to identify some few most informative case studies for basically each response listed, drawing conclusions from each of those case studies in order to allow policy makers to adapt it to their own cases of interest. – It would be good to complement this report with a web-based database of case studies to identify optimal strategies and responses. Given the necessity to in detail account for the specific local context in each situation, it would be of key importance to systematically collect the wealth of information available from a host of case studies in both the scientific literature, but also in government and NGO reports.

Setting up a well-searchable and standardised database containing all this information would help to identify viable options in specific cases. Successful cases of responses and policy design, but also failures, would serve as a rich basis for policy and management design in new cases of similar characteristics. Compiling such a data base, with help of the public, would be an important task for the FAO, for example, as such authoritative hosting would support achieving high quality and coverage, as well as consistent data representation. However, the public should repeatedly be asked to fill in own case studies which subsequently would be harmonized by the host. Because of the context-specificity, such a database could be a valuable tool for designing and implementing optimal policies. The NRC Sustainability Pathways webpage has started such a database: see www.fao.org/nr/sustainability and choose sustainable livestock.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

Social issues are prominent in traditional systems and ESW could be solicited for livelihoods ad gender information.

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

Well, this is a whole research program in itself – include it in a well-organised attempt to fill such a data base with help of the public, as described above.
10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

Again – compiling and synthesizing this would be a whole research program in itself – there is quite some literature of potential relevance for this report, and it would definitely be good to have this included in the report in detail. In general, the report is strong in synthesis of the problem statement and forecasts – but more work is needed to have a similarly encompassing assessment of potential responses in such a way that it really serves to guide decision makers.

11 The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

Again a big task; cf. remarks above; such a data base would also help to identify data gaps.

12 Are there any major omissions or gaps in the report? Are topics under- or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

Remarks above and detailed comments below; most important: (i) take up demand side measures; (ii) address key aspects of crop production for food (e.g. fertilization) as well as (iii) protein input efficiency versus protein output; (iv) be more concrete regarding policy suggestions.

References of interest:

4. FAO 2013, Toolkit – reducing the food wastage footprint.
5. FAO 2014, Mitigation of Food Wastage: Social costs and benefits

10. Schader, C., Muller, A., El-Hage Scialabba, N., Hecht, J. and Stolze, M., 2014, Comparing global and product-based LCA perspectives on environmental impacts of low-concentrate ruminant production, 9th International Conference LCA of Food San Francisco, USA 8-10 October 2014


18. Longley et al. 2014. The Role of Fish in the First 1,000 Days in Zambia. IDS Special Collection.


29. FAO Sustainable Diets and Biodiversity PBL: Roads from Rio+20 Pathways to achieve global sustainability goals by 2050
30. PBL: The protein puzzle: the consumption and production of meat, dairy and fish in the European Union
31. CBD: Global Biodiversity Outlook (GBO) 4
32. See other papers from M. Kok and Rob Alkemade http://www.fao.org/docrep/016/i3004e/i3004e.pdf
33. Ecosystem services provided by livestock species and breeds, with special consideration to the contributions of small-scale livestock keepers and pastoralists http://www.fao.org/3/a-at598e.pdf
41. Pathways to a socially accepted livestock husbandry in Germany http://www.bmel.de/SharedDocs/Downloads/EN/Ministry/ScientificAdvisoryBoard-Pathways.html
42. LEAP guidelines and databases that are all based on life cycle approaches. http://www.fao.org/partnerships/leap/resources/public-review/en/
43. Mottet et al 2015
44. Havlik et al. 2015
45. Perry et al.

Additional detailed comments from individual officers

<table>
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<th>page</th>
<th>lines</th>
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<tbody>
<tr>
<td>8</td>
<td>19</td>
<td>Line 19: substitute the word “environment” with “climate change”</td>
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<td>8</td>
<td>24</td>
<td>Line 24: add at the end of the sentence “and environmental health”</td>
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<td>8</td>
<td>37</td>
<td>Line 37: Balance this paragraph by adding a sentence on the downside of excess animal products, such as non-communicable diseases (NCDs)</td>
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<tr>
<td>8</td>
<td>39</td>
<td>Line 39: to the list of concerns, add “N and P surplus”</td>
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<tr>
<td>8</td>
<td>41</td>
<td>Line 41: after “food-borne diseases” add “and NCDs”</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>Line 3: reference to health problems from overconsumption is rather weak when NCDs are the most growing health concern</td>
</tr>
<tr>
<td>9</td>
<td>31</td>
<td>Line 31: this introductory section declares the bias that the livestock sector “must” grow, rather than looking for sustainable production and consumption. OECD consumption rate of livestock products is taken as written in stones rather than being left open for revisiting (and eventually confirmation) after he analysis. The 2012 FAO projection predicts a 60% increase in food “demand” – it does not say “it must happen”, as consumption patterns are not optimal</td>
</tr>
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<td>9</td>
<td>38</td>
<td>Line 38: basing technology improvement on “narrowing the yield gap” is a wrong assumption, as high yield gaps are based on high fossil-fuel based inputs. Also, the yield focus does not take into account or multi-purpose livestock (also in term of livestock commodity: i.e. milk and meat cow) nor longevity of animals. Here what must be prominent is efficiency gains.</td>
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<td>12</td>
<td>23</td>
<td>Line 23: USDA data also demonstrates that for the same period, most crop yields (not only corn) lost an average of 30% on their Nutrition Index. Thus, yield increases in the post WW2 period must be balanced with nutrition decreases per hectare.</td>
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<td>12</td>
<td>30</td>
<td>Line 30: in addition to Phosphorus, N flows are also distorted.</td>
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<td>13</td>
<td>12</td>
<td>Line 12: health concerns should also include growth hormones impacts</td>
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<tr>
<td>13</td>
<td>39</td>
<td>Line 39: at the end of the sentence, add “and even more so, under climate change scenarios”</td>
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<tr>
<td>13</td>
<td>46</td>
<td>Line 46: the optimism of the 2012 FAO report on availability of “sufficient resources” ought to be nuanced with different (more pessimistic) trajectories when climate change scenarios are considered: the food system (now not needing more lands) will have higher soil erosion potential, higher annual deforestation potential, higher arable land occupation, and more non-renewable energy and pesticides demand.</td>
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<td>13</td>
<td>50</td>
<td>Line 50: the assumption on higher productivity lifting smallholders out of poverty has proven its limits in the last decades. For such a credible statement, a discussion is needed on who gets the benefits of higher productivity, in what system. So at least nuance this statement and refer to the section later that provides differentiated analysis.</td>
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<td>16</td>
<td>3</td>
<td>Line 3: again, the yield gap analysis is partial (see comment above). The one key indicator in livestock efficiency is “protein input versus protein output”: feeding cereals to cows may boost productivity and is the least efficient use of resources. AGA has data on such efficiency ratios by livestock type.</td>
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<td>17</td>
<td>17</td>
<td>Line 17: to the list of diseases, add “cancer”. Also, substitute “Alternative” with “Balanced” diets.</td>
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<td>17</td>
<td>46</td>
<td>Line 46: asserting that animal-sourced foods are the “word’s most important” denotes a bias when opposite perspectives are emerging.</td>
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<td>17</td>
<td>48</td>
<td>Line 48: associating meat consumption with “cognitive development” may offense vegetarians, implying for example, that Indians lack cognition!</td>
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<td>23</td>
<td>6</td>
<td>Line 6: after “diets”, add “and lifestyles” to include the cultural element that drives consumption models</td>
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<td>23</td>
<td>45</td>
<td>Line 45: here again, nuance the global resource sufficiency by adding “without considering climate change”.</td>
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<td>24</td>
<td>4</td>
<td>Line 4: add “and novel biomaterials”</td>
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<td>25</td>
<td>39</td>
<td>Line 39: reference to Save and Grow proposal as the only feasible exception is far from being convincing (it is presented like a joke)</td>
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<td>27</td>
<td>26</td>
<td>Line 26: rather than comparing meat and milk consumption levels to developed countries (i.e. excess consumption), it may be more useful to use recommended daily rations or some optimal nutrition indicator. Using the BAU baseline for livestock-derived foods is the main weakness of this paper, unless the title is modified to let go &quot;sustainable&quot;.</td>
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<td>28</td>
<td>22</td>
<td>Line 22: dairy products and casein impact on health in adults is also subject of scientific debate</td>
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<tr>
<td>32</td>
<td>13</td>
<td>Line 13: the distinction of main categories of livestock systems is very good for a qualified analysis and a table aligning the different management systems to different contributions to: (i) food provision, (ii) labour, (iii) use of natural resources and (iv) promotion of ecosystem services would be very useful.</td>
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<td>35</td>
<td>33</td>
<td>Line 33: efficiency ought to be explained here as economic, environmental and agronomic efficiency differ in terms of what is considered efficient and at what cost.</td>
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<td>41</td>
<td>49</td>
<td>Line 49: it is recommended to use data of the Food Wastage Footprint publications to describe FLW impact on natural resources as well as cost-benefits of mitigation measures (see <a href="http://www.fao.org/nr/sustainability">www.fao.org/nr/sustainability</a> and go to Food loss and waste page). In the following para on page 42, there is a statement on lack of cost-benefit of investments while this is incorrect:</td>
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current legislations have been compiled in the FWF Toolkit while the FWF Mitigation volume presents a livestock case study.

| 43 | 3 | line 3ff ICT’s – this could be expanded considerably, and may not address communication and information only, but also 3D-printing (e.g. Pearce 2015), etc. – may also refer to all the new remote-sensing data that becomes available and will allow improved monitoring of certain activities, states and developments, and will provide improved data on land use and land cover, etc.

| 43 | 46 | line 46-50: the content of this paragraph should be expanded in the previous sub-section 2.6 on food systems – then “food systems” would play a more prominent role in section 2.6 (cf. the previous comment).

| 45 | 24 | lines 24/25: this is very vague – be attentive to not implicitly assume some overly romantic picture of how agricultural production should be – “fostering liveable rural communities”; for example, is a different goal than increasing sustainability of the food system – this increased sustainability should be achieved in a way that is acceptable for the current rural communities – but given the drastic change of those communities over the past 50 years, in particular in developed countries, we have to be cautious to not cement the current rural communities in a certain state, thus rather hindering their development. The question is, for each country: “which agricultural production system do we want to have in 30 years?” or so – and this can well include a change towards bigger farms, less rural population – in case these people find decent jobs in the urban centers or urbanization of rural areas takes place in a sustainable manner; - just make such issues explicit when addressing them similarly, “and producing food in ways compatible with values.” is very vague – what does this mean? Which and whose values? Is the core of these values a market liberalism or a strong focus on environmental protection? This has totally different consequences and needs to be made explicit and specified. – OK, it is somewhat expanded further down, but could be made more detailed – basically discusses the potential of labels in a context of free choice – but as said, other approaches to live these values may be chosen in a societal process.

| 45 | 26 | line 26-28: emphasize “internalization of external costs” when talking about efficiency – this is one thing that has to be made explicit as it is behind many of the adverse developments in agriculture: a lot of the external costs of production and consumption are not internalized.

| 45 | 29 | line 29-31: may add: pesticide use and ecotoxicity; water USE and scarcity (not only pollution)

| 45 | section 3 in general: take up these additional points just mentioned above in detail.

| 46 | 48 | line 48 – p47, line 2: and what is the conclusion of this observation? Please make this more explicit (cf. the comment above for P45, lines 24/25, regarding “fostering liveable rural communities”); I would suggest that this report should be more concrete and more detailed regarding this challenge of workforce, productivity, and GDP-share.

www.fao.org/cfs/cfs-hlpe
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<tr>
<td>47 32</td>
<td>“livable rural communities”: again, be more detailed on what exactly is the problem and the aim – what does mean “livable” and who decides on this? – and is agricultural policy indeed the right approach to achieve this goal? – A key will be the availability of jobs and education – but just keeping much workforce in agriculture may not be a good goal per se – in the long run; given the ITC developments, other job opportunities than agriculture may emerge in rural areas over the next decades; thus, be attentive to not cement the rural communities via agricultural production – and strongly differentiate this discussion in relation to countries, regions affected.</td>
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<td>48 16</td>
<td>line 16-22: please add references for the impact studies; this GMO topic is very sensitive and it should not be dealt with in such a short paragraph only. I would suggest to expand this towards a balanced coverage and discussion of positive and negative impact studies; - in its current form, it implicitly strongly suggests that this approach is an important part of solutions, but this should be discussed in more detail.</td>
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<tr>
<td>48</td>
<td>section 3.2.1 this sections covers many important topics, but it does not mention “internalization of external costs” at all – please add a paragraph on this as external costs play a key role in agriculture and its environmental impacts; related to this are economic incentive schemes, such as abandoning distorting subsidies or taxation of polluting inputs. Clearly, this rather tends to increase prices than reducing them, but this discussion also needs to be taken up: should food become cheaper or more expensive? – Consumers and producers will be affected differently and there is a big danger of very distorting intervention; - If the goal is access to food, then the means to have cheap agricultural production may by far not be the most efficient means to achieve this, as it also makes food cheap for those that could afford more expensive food, and as it generally comes with external costs that are borne by the society afterwards, in total decreasing welfare</td>
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<td>49 9</td>
<td>line 9-12: this is the “rebound effect” of efficiency measures – may add some paragraph to the related literature. It is the core of the argument that only increasing efficiency production without addressing changes in demand may not lead to much improvement.</td>
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<tr>
<td>49 13</td>
<td>line 13-18: this is interesting and visionary – and it is in line with some comments made above: which agricultural production system do we want to have in 30 years? I would suggest to take up this question with all its welfare related consequences on rural jobs and livability or rural communities much more explicitly.</td>
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<td>49</td>
<td>line 19-26: this paragraph sort of blocks any argument that aims at discussing such fundamental changes in diets – but this is crucial: a true food system approach, the rebound effect mentioned above, etc. make it unavoidable that production changes and consumption changes are discussed together and that the projected increase in animal products should also be strongly questioned – reducing the amount of animal products is one approach with big leverage to reduce environmental impacts from agriculture and need not only be argued via health arguments (cf. also the scenario discussions further up in the report, e.g. Erb et al. 2009, Stehfest et al. 2009).</td>
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lines 25/26: this comparison of orange juice and milk is not entirely correct and seems to serve to just illustrate that animal products are climate friendly. First, the carbon footprint (g CO2 per 100g product) of milk is HIGHER than of orange juice, also according to the study cited; however, it is correct that the carbon emissions per aggregate nutrient density to climate impact index (NDCI), which they also report in this study, is higher for orange juice: thus, focusing on a range of nutrients instead of the quantity, the emissions of milk are lower; however – it is then important whether the comparison of beverages on the basis of these nutrients make sense – as can be seen for water: water has no nutrients and thus has a NDCI=0 – but still, tap water is a very sustainable beverage with very low carbon footprint (CO2 per 100g; a tenth of that of milk). – Thus, when comparing NDCI, beverages rather seem to be compared as nutrient supply, i.e. food, rather than as liquidity supply (i.e. beverage). – Please be more explicit and transparent with such numbers. – Would also be interesting how much of the CO2 emissions of orange juice stem from transport and how apple juice would perform in this analysis.

line 28 ff: that’s good, the externalities are taken up and their importance is acknowledged – but it would still be good to mention them already earlier, as indicate above.

line 43/44 – implicitly, and with the context of the previous sections, this is rather termed as a negative development – but why not? Again, one key aspect is a discussion on which agricultural system will be present in 2030 years – which average farm sizes, etc.

line 21: please mention – or make explicit – the emissions related to land use change for feed production and may also mention the soil-C sequestration in grasslands that can make grassland –based production systems carbon neutral (at least till saturation is reached; Soussana et al. 2010) resp. that may contribute to conserving grasslands which, if converted to cropland (where this is possible), would lose huge amounts of CO2 (Smith 2014).

line 9: add “grassland based feed” to “increased use of crop residues and by-products”.

line 21: reference Havlik et al 2015 is missing in the reference list.

section 3.4.2: a discussion on the CAUSES of the animal diseases would be interesting – please add such, in particular addressing which animal production systems may lead to more or less diseases (e.g. correlation with high productivity levels or not, etc.).

line 29-31 – please emphasize the problem of the rebound effect here as well: WITHOUT changing output, such emission reductions are viable, but given that the output increases considerably by 60-70% or so (e.g. based on Alexandratos and Bruinsma 2012), total emissions from the livestock sector would still increase by 20% or more.

line 40: when mentioning C-sequestration in grasslands, may add that this shows a saturation dynamics and thus only delays the need for true emission reductions but cannot offset part of the emissions indefinitely (Smith 2014).

line 50: mention “internalization of externalities” explicitly as well, e.g. right after “improve the efficiency of markets” (as it is part of increasing this efficiency – as long as externalities...
Section 4.3: “pathways...”: please be much more concrete when discussing those; as it is now, it mentions important general aspects, characteristics and types of solutions, but way too general to serve as more concrete policy advice. It is indicated, that this section will be further elaborated – thus please make it more concrete when doing so. The “solutions” part of such a report should not provide general statements that are agreed on by (almost) any reader, while no reader will be prompted to action, but it should rather suggest concrete paths of action, that may be criticized, but in such criticism, alternatives may be developed as well. The only thing that counts is then that concrete action is identified and then implemented – and at least some suggestions for such concrete actions should be provided in such a report – on page 10, it is stated that “the report will offer policy-makers and other stakeholders realistic options to achieve that goal [which is: improving FSN through sustainable agricultural development]” – thus, such realistic options should be presented, and to be realistic, they need a certain level of concreteness and detail. Or maybe state at the beginning of section 4.3. that these “pathways” line out the challenges ahead and key issues to be decided on, but that concrete options on how to act will be presented in section 4.4.

Line 55: the subsequent list does not mention consumption side measures at all. But given that the report claims to adopt a food systems approach and that consumption has been a topic above in various places, it should show up here as well. Important aspect of pathways towards the goals of increased FSN through sustainable agricultural development are key consumption measures such as reduced food wastage, reduced consumption of animal products and related dietary change, as well as a discussion on biofuel futures. – Please give those aspects the role they deserve also in this section.

Line 27 ff: this list is also quite general and should list more concrete measures – e.g. “apply social safety nets” – this is important, but how exactly? Similar: “prepare for and adapt to climate change”; other suggestions remain even more unclear, e.g. “Encourage formation of voluntary associations in the agri-food chain” – why should this lead to improvements of the kind and size needed? It clearly can, but some motivation and discussion should be provided. Add to the list:

- Develop and implement insurance solutions to deal with weather and market risks
- “Reduce food losses and wastes” can also be seen as a social response, not only an economic; this illustrates, that for each of those bullet points, there should be at least a paragraph with some details and discussion, aiming at making it more concrete. Similarly: “Apply the polluter pays principle” can also be listed as economic response.
- Other important aspects that are missing: reduce N inputs and increase N use efficiency; close nutrient cycles; address fossil P use and identify alternative sources (recycling). Reduce pesticide loads, etc.
- Demand side measures addressing dietary change towards less animal products are also missing.
When remaining on this level of generality, though, this will not really change much: at least, some assessment of the context in which each suggestion may be implemented and when not should be added, maybe it would be good to have a SWOT-analysis of each of those suggestions. As the scope of the report is global, such suggestions can never be tailored to single countries or regions – but they could be presented with a suggestion on how to assess the viability in a given situation; and this could be addressed via a broad SWOT analysis for each point, collecting and analyzing which barriers it may face, which possibilities for success there are, etc., depending on certain context characteristics. It will for example be difficult to reduce N inputs in a context where governmental default suggestions for N fertilization rates are way too high, etc. Such a SWOT analysis could be taken up as part of the suggestions on how to approach this provided in section 4.5 and it would also allow to identify trade-offs and synergies between different responses (cf. 4.6).

The other thing that can help to become more concrete is to present a wealth of detailed case studies on these different responses (this may come further down in the report?).

The case studies are helpful and their structure as well; however, these are entirely focusing on production and a food system approach is lost – no case study on food wastage reduction beyond the production stage or on dietary changes; such should be added. In addition, case studies may need to provide more details to truly capture all aspects; - in the Amazon-case, for example, the issue of indirect Land Use Change is not mentioned at all, although this may be an important driver behind deforestation – thus, the original cause may not be beef production but sugarcane (e.g. Andrade de Sá et al. 2013). It would be nice to have more case studies and it may be an idea to in addition evaluate those with a SWOT analysis of the various responses involved – they need to provide as much information as possible for a policy-maker to identify, whether a specific response may be an option for his or her country or region, and what the specific strengths, weaknesses, opportunities and threats – i.e. “challenges” may be.

Not only waste, loss and health reasons may work towards dietary changes, big leverage for environmental improvements exists also for diets with reduced animal products in general (also monogastrics), argued by the amount of animal products that may be supplied without food-competing feedstuffs (Schader et al. 2014).

The HLPE definition of Sustainable food systems should be reported in the text and not in the footnote.


Pag,26, line 13, after Livestock production is central to food systems, a reference should be
111. Fabienne Moust, World Food Programme, Italy

WFP comments on CFS HLPE Livestock report V0 draft

While FSN is mentioned repeatedly as one of the key focus areas for how the contribution of the production and consumption of livestock is assessed, the attention to nutrition remains very superficial and there are a couple of basic errors in the report as well. More information could be included about how food systems could be linked to nutrition and thereby improving nutrition. The report would also benefit from making more linkages with the contribution to SDG2s, as discussed in the introduction.

A. Errors:

1. Statistics.
   a. P8 – lines 4-11, states the following: 800 million hungry, 2.5 billion affected by malnutrition and 2.1 billion overweight including 671 million obese. What is meant with ‘malnutrition’, should this be 2 billion with micronutrient deficiencies?
   b. P11 – lines 16-18, similar statistics, but now it says 795 with chronic undernourishment (instead of ‘hungry’), two billion suffering from nutrient deficiencies, which should be MICROnutrient deficiencies, and two billion overweight or obese.
   c. Furthermore, undernutrition in early life, or stunting, affects 26% of under-fives. Considering that this affects individuals for life, and prevalence was higher among
the generation that are adults today, more than 2 billion people live with the consequences of stunting during their early childhood. ASF play an important role in the prevention of stunting (see below), which should be mentioned early on in the report.

2. Definitions & terms
   a. P11 – line 20, states that undernourishment is the result of chronic calorie deficiency, while undernourishment is in fact defined as not having enough calories’. By stating that it is the result of chronic calorie deficiency, it is equated to a clinical sign, which is not how this term is defined and the number affected is estimated. Malnutrition is observed at the individual level using biochemical and anthropometric indicators, not undernourishment. And more importantly, malnutrition can be due to many dietary deficiencies (kcal, micronutrients etc) as well as illness (i.e. direct causes in UNICEF conceptual framework).
   b. P8 – lines 31-37, mentions ‘sources of vitamins and key micronutrients’ – vitamins and minerals are ‘micronutrients’, so if something is a source of key micronutrients, that already includes vitamins (as well as minerals)

3. Nutrients contained in ASF
   a. P8 – lines 31-37 states that several micronutrients are contained in ASF that are not found in plant foods. However, only vitamin B12 is not found in plant foods. What should be said instead is that although most micronutrients are also found in plant foods, their content, but particularly their bioavailability, is better from ASF. Good examples are iron, zinc, vitamin A. This makes ASF an important source of (micro) nutrients, especially for groups with high needs (young children, pregnant and lactating women, people suffering from undernutrition).
   b. The emphasis for the role of ASF should be on how they are an essential part of the diet to ensure that nutrient requirements are being met, especially among those that are nutritionally most at-risk. This is a different focus compared to what is stated in P8 – lines 31-37: ‘valuable in combating malnutrition’, which gives the impression that once malnutrition is diagnosed, animal foods should be prescribed.

B. Need for more in-depth discussion on role of different ASF in the diet, whose diet, and in what amounts

The role of ASF as source of essential nutrients during particular periods of the lifecycle needs to be mentioned. On p17, from line 49 onwards, there is discussion on the importance and also on the risks of animal source foods, without becoming more nuanced about why ASF are important and for whom and in what amounts, as well as which types are better (fish, poultry, eggs, dairy) and which should be consumed in moderation (red meat, processed meat).
For young children, dairy is important for linear growth (stunting prevention), which is important to mention specifically.

With regard to amounts that can be consumed, there is a very good discussion on balancing energy, climate change and health in McMichael, Powles, Butler & Uauy, Lancet 2007;370:1253-63, and it will be very good to compare their recommended per capita intake to the intakes reported on p27, lines 22-29 and p24, lines 8-24 of the CFS report V0.

C. Other Specific Comments

- Particular parts of the report are more (or only) focused on livestock, e.g. chapter 2.7 and 3.1.2. Conclusions of chapter 2 could include more information on sustainable agricultural development. With respect to 3.1.2., it is not clear why interlinkages between gender and agricultural development have not been made – is the intended focus just on livestock in this part of the report?
- Page 32-33: In total, six different types of systems are distinguished in the report, i.e. pastoralist and agro-pastoralist systems, smallholder mixed farming systems, intensive livestock systems, commercial ranchers, intensive crop farming and smallholder systems where animals represent less than 10 percent of the total farm output in value terms. It is not clear why Table 1 on page 59-60 only includes the first four livestock systems.
- Page 23-24: it is not clear why FAO projections are presented in a separate chapter. Would suggest combining 2.1.1 and 2.1.2, also because ‘projections’ are again discussed in 2.1.2, lines 39-41 and lines 46-48.
- Page 60, lines 6-9: It now seems that livestock is not nutritious, however the high nutritional value of meat (protein, micronutrients) has been discussed before and is not taken into account here. Suggestion to include more precision on broad claims.

112. Peter John Opio, Uganda

The categories of livestock systems and the contribution of livestock to food security and nutrition in developing countries are well described in section 2.3, pages 30-35 of the draft report. That is, mixed crop-livestock systems produce 65% of beef, 75% of milk and 50% of lamb. Literature also indicates an efficient cycling of nutrients among crops, animals and soil is crucial to the sustained productivity of low-input mixed farming systems in sub-Saharan Africa where constraints including access to agricultural inputs such as fertilizer and improved seed are limited and nutrient balances or the difference between nutrient inputs and harvests are negative for many production systems. Livestock can contribute to efficient nutrient cycling as well as avert the nutrient imbalances (Powel et al 1995). A number of studies as reported by FAO XXX also reveal that farmers
engaged in mixed crop–livestock production earn half or more of their cash income from animal products. Livestock play an important role in conservation agriculture practices. Citing literature, comparing Conservation Agriculture and Conventional draft (CD) tillage practices in Zambia showed that labour productivity (Kg/day) for the Magoye Ripper was higher (US$47.61) than the Conventional draft tillage (US$30.27), FAO (2010). The returns to labour for using the Magoye Ripper (US$2.65) were as well higher than the conventional draft (US$1.28). It is worth noting the riipers are drawn by cattle(oxen). See Document attached for more information.


113. Secretariat of International Relations, Ministry of Agriculture, Livestock and Food Supply MAPA, Brazil

In response to the questions listed in the query letter, regarding the document prepared by the High Level Panel of Experts on Food Security and Nutrition, this paper is addendum on the paper already sent by the Brazilian Ministry of Agriculture, Livestock and Food Supply in order to enhance its clarification on some issues, especially those affections to Brazil.

Page 13 line 5-6

Page 13 line 5-6 “Growing intensification of production and expanded international trade with longer, more complex food 6 supply chains is also increasing risks (again, further detail is provided in Chapter 3)” – It should better to explain that “it changes the nature of risk”. The rationale is that it is not clear if the risk was increased or decreased since the long chains have provided more sources of food than before.

Line 6-7 “Food-borne diseases resulting either from biological contamination (pathogens, microbes) or chemicals are a significant cause of human health problems related mainly to fresh food products such as fruit and vegetables, as well as animal-sourced foods.”

It should be deleted. There is no evidence that short chains that we had in the past had less risks of biological contamination. Most of related of occurrences can be just the effect of strengthen the inspection and alert systems.

Line 20-24

www.fao.org/cfs/cfs-hlpe
Line 20-24 “There is greater scrutiny of the way in which food is now produced and consumed, increasingly in larger, more formal and more intensive production systems, with longer supply chains, frequently sold in global markets for distribution after elaborate transformation and packaging through supermarkets and more often consumed outside the home. Consumers are increasingly remote from agricultural production and often unaware of the processes by which their food is produced.”

It is not only the supply chains that are expanding but also the traceability systems that are providing information on food traded around the world.

Page 25 lines 35-42
Page 25 lines 35-42 The text in those lines are not precise when analysis the “western high meat” diet and it seems not to include the advances in meat productivity around the globe.

Page 37 lines 24-36
Page 37 lines 24-36 The text in this paragraph could be refined to reflect the high-productivity of Brazil sugarcane ethanol that makes it competitive even without incentives.

From page 47 line 48 to page 48 line 15
From page 47 line 48 to page 48 line 15. The text in those 2 paragraphs induces (specially in the 2nd paragraph line 6-15) the conclusion that some misunderstandings of the consumers related to risk are “ethical problems”. It should stress the role of strength risk communication process to solve this errors in perceptions.

Page 52 lines 3-21.
Page 52 lines 3-21. The prescriptive part of the text prejudges a great effort made in negotiations in UNFCCC. In this sense, the focus of the agriculture in climate change must be adaptation to guarantee food security and mitigation could be mentioned as co-benefit not as a focus.

Page 54 lines 12-18
Page 54 lines 12-18 – The water footprint of meat production must not be addressed related to calories produced because it is not a staple food but a major source of proteins and amino acids that are related to balanced diet.

Page 55 lines 7-44
Page 55 lines 7-44 – The texts should be better balanced and contextualized in the major sources of greenhouse gases. It should not be used in a way that could induce an over contribution of sources other than fossil fuels that are the largest contributor for emissions.

Page 57 and page 85 (21)
Page 57 and page 85 (21) – The importance of antimicrobial use in livestock is recognized, yet the statements of FAO proposed text should reflect only conclusions and affirmations based on the risk assessment, management and communication, which are the forming elements of the risk analysis. Once risk analysis is a tool based on strong scientific evidence, it is safer, more precise and efficient
to adopt control and verification measures for production, and is recommended by reference WTO provisions, such as Codex Alimentarius, World Organization for Animal Health (OIE) and International Convention for Plant Protection (IPPC) and ISSBA.

Furthermore, occasional mistakes and overestimation on the use of antibiotics on agribusiness do not contribute to the efficacy to combat microbial resistance. The cases of resistance to antimicrobials are related to misuse of these medicines in humans, mislabeled products, falsified products, low quality products, altered products and inappropriate formulated and commercialized products. Therefore, it is a concern that an emphasis on agribusiness use, which lack scientific proof, may lead to miss the focus of the controls, which should be the use in humans.

Although antimicrobial resistance in animal production may, hypothetically, be harmful to humans, it lacks independent and strong scientific evidence so as to result in adoption of any recommendations. False statements may compromise public policy control and the proper financial and physical resources guidance.

In 2003, FAO/OIE/WHO ministered workshops on non-human antimicrobial use and antimicrobial resistance in 2003 (on scientific assessment) and in 2004 (on management options). As a follow up, the OIE developed a list of antimicrobial agents of veterinary importance, in parallel with the WHO list for human medicine.

Furthermore, OIE has worked on the preparation of strategies to contribute to the combat of antimicrobial resistance, as follows:

“The OIE promotes the responsible and prudent use of antimicrobial agents in terrestrial animals, so as to preserve their therapeutic efficacy and prolong their use in both animals and human. It has developed standards on the monitoring of the quantities of antimicrobial agents used and antimicrobial resistance. The OIE also developed standards and guidelines to provide methodologies for OIE Member Countries to appropriately address the risk of the emergence or spread of resistant bacteria that result from the use of antimicrobial agents in food producing animals.”

In short, an occasional emphasis on the text on agribusiness aspects may minimize or suppress actions that are directly related to the control in human use. This focus mislead may overlap the commercial barriers interests over the legitimate concerns on public health.

Page 58 – Animal welfare - Regarding animal welfare we recognize its importance and support the work done by OIE, organization reference for this subject, therefore we understand it is missing this quoting in the text.

Page 74 – box text 13 – The expression “Cattle ranching in the Amazon region is one of the most important sources of deforestation in Brazil due to its low productivity” is an oversimplification that damages the rich debate over drivers of deforestation in the Brazilian Amazon. It also does not account the great efforts made in the Brazilian Program against Deforestation in Amazon (PPCDAm) that reduced deforestation in the region since 2005.

Also, it should be noticed that deforestation process occur mostly as a secondary source of income, being timber the first and major driver of deforestation. Reasonable way of tackling this problem...
should be rising international control for non-certified timber and promoting sustainable
development of planted forests, besides, of course strict police controls on borders.

Page 81 lines 30 -33 – It should be stressed that any intervention about diet change must be
preceded by an open debate and not be enforced by any technocratic enforcement

Page 84 lines 18-19 – It should be aligned with UNFCCC discussion on agriculture that emphasizes
adaptation as major focus and addresses mitigation as a co-benefit.

Page 84 lines 35-37 – That paragraph about incentives related to natural resources should make a
disclaimer in a way that it not should be used in a manner to pay subsidies considered harmful by
Agriculture Agreement.

114. Heber Brenner, Brazilian Ministry of Agriculture and Food Supply, Brazil

Dear Collegues,

In addition to the comments sent from Secretariat of International Relations, Ministry of Agriculture,
Livestock and Food Supply - MAPA, Brazil, here are some remarks.

A) MAPA believes that a wider food supply chain sustainability is related with the balance
among efficiency, management, food safety, quality, animal and human welfare,
environment support and profit. These factors must to be guaranteed in/by each of the food
chain stakeholders ('from farm to fork' approach). Regarding livestock sustainability, all these
elements are presented in MAPA's programs in order to support the productives sector for
implementation of best practices in livestock supply chain, including best agricultural
practices, best animal and food transportation practices, best industries processing practices
(HACCP, GMP, SSOPs) and of quality management system.

For instance, the Brazilian Decree n. 8533/2015 established the "Programa Mais Leite
Saudável" ("Healthy Milk Program"
http://www.agricultura.gov.br/portal/page/portal/Internet-MAPA/pagina-inicial/leite-
saudavel) with the main objectives to improve the milk quality/safety and a wider
sustainability though the Brazilian dairy production chains. As the means of reaching them,
the Brazilian Ministry of Agriculture (together with some strategic Universities and EMBRAPA,
Dairy Farmers Associations, Dairy Industries Associations, States Agriculture Federations and
others) will support the promotion and implementation of good milk production, milk
transportation and milk processing practices protocols. More than 80.000 milk producers will
be supported in the next 4 years and at least the largest 50 milk processing industries are
already participating. A public budget close to US$300 million is foreseen for the next 4 years
and much more in private budget from 2015 on (the private budget and private efforts have
no limitations on values or time).
Please, see also some suggestions in answer to the question:

13. **Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.**

B) A huge concern in many developing countries, mainly in the large ones (like Brazil), is the efficiency and the quality on food transportation. Regarding the efficiency, all the food supply system should be improved in order to mitigate the food losses during transportation, including the repairing and enlargement of roads, ports, airports and water transport systems. Regarding the quality on transportation, this issue is also very important in relation with the welfare of slaughtering animals and with to maintenance of the food quality and safety thru food chain (from farms to food processing plants / from food processing plants to food distribution centers/supermarkets), including the mitigation of economic and sanitary food frauds during the transportation processes.

Best regards,

HEBER BRENNER
Official Veterinarian
Head of Best Practices in Livestock Supply Chain
Department of Production and Sustainability Systems – DEPROS
Brazilian Ministry of Agriculture, Livestock and Food Supply - MAPA

115. **Hamidreza Naderfard, Iran (Islamic Republic of)**
Honorable Dr. Vincent Gitz. Coordinator of HLPE

My best compliments to you and all humans who think about happiness, food security and welfare of not only present, but also future generations. I hope all of you are happy, healthy and successful in your work and life.

Subject : My view points about 94 pages of HLPE draft V0, published by DAD.Net@fao.org to DAD.Net@dgroups.org. In Tuesday, October 13, 2015, under the title of:

**HLPE Report on:**
Sustainable Agricultural Development for Food Security and Nutrition,
Including the Role of Livestock
e-Consultation on the Draft V0

www.fao.org/cfs/cfs-hlpe
in advance, I cordially apologize you for sending you my comments in delay , I hope maybe it will be useful for final version of HLPE draft.

I read the 94 pages (Include the references) of draft V0 very patiently and very accurately with the extremity of trusteeship (without citing and quoting) with taking into my consideration of 12 questions.

The draft was relatively complete and comprehensive from writing the related subjects point of view . I mean that all important subjects has been discussed and analyzed, the important subjects such as: economic, social, environmental, marketing and trade, different livestock breeding systems etc BUT, In my opinion, some subjects were more or less stressed (Emphasized). On the other word , I believe that some important subjects must be added or must be more stressed as follow:

1-Now, in 2015, if we want to complete the draft of AFS (Mainly, the draft which has the outlook of 2050), we must give the first priority (Importance) to:

A-Political conditions, mainly, Asian and African developing countries. Unfortunately, as you see, ominous phenomenon of terrorism, imposed and unwillingly internal and external wars along with other destructive phenomenon such as climate change have shadowed the human being of 21st century. Accordingly, these ominous phenomenon, No-doubt, will affect the all economic, social-environmental, cultural and ethical issues. Every kind of programming include global food security, is feasible and accessible only, only in a calm and secured environment, specially, agriculture activities which is involved with different socio-economic, climatic and geographic aspects in two vast continents of Asia and Africa. Therefore, I believe that, terminating and destroying ominous phenomenon of terrorism and providing a calm and peaceful world is the first, the most fundamental and vital prerequisite for every kind of developmental project including plans and projects of animal food security, Therefore, all global organizations, governments, NGOs etc must take this bitter and painful fact into their consideration before compiling every kind of global, regional, continental or country level (Particularly while compiling final version of HLPE). In this connection, International bodies such as international organization who are linked with united nations have heavier responsibility on their shoulder.

B-Another very important point which must be referred and taken into consideration while compiling the final version of HLPE is : Mental and cordial persuasion (cordial belief) of high level policy-makers in all countries such as: presidents, prime ministers, ministers member of parliaments and academic (Universities), research centers etc. They must cordially believe and do their best for food security of all people of not only present, but their next generation (without compromising the environment) without their keenness every developmental project (Such as animal food production) will be ineffective or less effective. Their enthusiasm originated from their belief to necessity of food security, surely will cause their support and finally will result in happiness and more incentive among deprived and poor farmers, mainly small size farmers (who have a few domestic animal with or without crop production) who produce milk and meat, not only for their family, but sale the surplus and get income. Therefore, I request you to mention this point in the final version of HLPE. During
43rd session of HLPE, the policy-makers who have significant role in executing the food security projects must be obliged do their best in the way of food security for future generation.

2-Another point which I think has been weakly seen in the HLPE draft V0, is serious necessity of conservation of Indigenous(Local) animal genetic resources. In the spite, some international bodies (Mainly FAO) have started this point from about 30 years ago, but, I think it is not sufficient. I think Final draft of HLPE version, must pay attention to this point more serious.

Why?

Because the world’s food systems are being squeezed from all sides: rising populations and changing diets are increasing the global demand for food, while food production is increasingly compromised by climate change and land degradation. In such sensitive and vital condition, These are only local animals which can tolerate hard and unfavorable environmental and management conditions (lack of good feed stuffs, animal diseases, parasitic diseases etc). local AnGR, are able to use the wastes and residues, more economic at least, at subsistence level. In addition to, they are national heritage of each country and as the source of variance they are the base of every scientific and research work in the field of genetic improvement, breed synthesis, nutritional research etc. So, I think Final draft of HLPE version, must pay attention to this point more serious.

3- Another point which I think has been weakly seen in the HLPE draft V0, is emphasis on the vital and the most prominent role of small-size animal breeders who live and work in the rural areas in the way of animal food security (With or without crop production).

Why?

Because of many social-economic-environmental and ethical reasons. They mustn’t be seen only as a producer of milk and meat, but, they are the best custodians of ecosystem and local animal breeds. If rural farmers have happy life with proper welfare and sufficient income, surely, they will remain in their rural areas, Therefore, won’t migrate to urban areas, accordingly, both, rural and urban population have happy and beautiful life, Vice versa. I, cordially, believe that final draft of HLPE, must give special emphasis on the rural development, with more emphasis on the small-size farmers who produce milk and meat in these areas.

4- Another point which I think has been weakly seen (somewhat is neglected) in the HLPE draft V0 is,

The processing and treatment of plant or animal wastes, by-products and residues in order to best exploit of them in animal feeding and finally, not only convert them to milk and meat but avoid of polluting the environment, economic advantages and the most important, lack of competition of these materials with human foods. I, cordially, believe that final draft of HLPE, must give special emphasis on the best and the most usage of these materials in animal feeding, because of different economic-environmental and social reasons.
5-In the end, if my letter became long, I cordially apologize you ,I wrote my view points only based on my human duties versus my next generation(Surely, in 2050, I am passed away).

Note: I am too much interested in participating in 43rd session of HLPE in 2016. If it is possible please, do inform me, I prepare a presentation( I have 31 years of experience on the rural development mainly on the working with small size and deprived livestock keepers)

Thank you very much for your soon reply

Mr. hamidreza naderfard. M.Sc in genetic and animal breeding (Born in 1959)
Head expert of buffalo development in Iran (I will be retired in July 2016). Ministry of agriculture. Tehean. Iran
Mobile: 0098(0)936 877 9010

116. Marie Paviot, GISA, France
Position GISA sur le draft 0 de l’étude HLPE sur :

« Développement agricole durable propice à la sécurité alimentaire et à la nutrition, y compris le rôle de l’élevage »

Nous remercions le HLPE pour cette consultation autour du draft zéro de l’étude « Développement agricole durable propice à la sécurité alimentaire et à la nutrition, y compris le rôle de l’élevage ». L’objectif de ce rapport doit être de faire une synthèse des débats liés à la définition du développement agricole durable et d’identifier les difficultés, les pistes de recherche et les conditions pour que ce développement agricole durable (intégrant dûment l’élevage) soit propice à la sécurité alimentaire et la nutrition.

Il nous apparaît cependant difficile d’avoir une vision globale de ce rapport, qui n’est pas finalisé (parties 4 et 5 notamment), et ce d’autant plus que la version révisée des termes de référence n’a pas été diffusée.

C’est pourquoi, dans un souci de transparence, le GISA souhaiterait qu’un second draft de ce rapport, incluant l’ensemble des parties prévues, soit à nouveau soumis à consultation avant publication du rapport.

D’une façon générale, il nous semble que ce rapport traite insuffisamment des liens entre systèmes d’élevage et systèmes agricoles, qu’il serait intéressant d’approfondir, en particulier dans la partie constats. Le rapport tend par ailleurs à se focaliser sur l’élevage, il néglige les autres produits agricoles (grandes cultures, légumes...). Ceci est particulièrement vrai dans le chapitre 4, très centré sur l’élevage, qui mériterait d’être revu en profondeur pour aborder la
question du développement agricole dans son ensemble. Le rapport tend également à opposer les « petits producteurs » aux

« grandes exploitations industrielles », en omettant 1/ l’existence d’exploitations agricoles (souvent familiales) de taille intermédiaire, 2/ la question des transformations rurales et de leur accompagnement (cf. notamment les travaux de Rural Struc), 3 / la question de l’articulation et des complémentarités possibles entre les exploitations, les systèmes.

Le chapitre 3 sur les défis à relever pour répondre aux objectifs du développement durable ne met pas suffisamment l’accent sur les questions d’accès (aux moyens de production, y compris terres et eaux, à la formation, à des emplois décent) et de réduction des inégalités dans l’accès. La question de l’emploi n’est pas traitée non plus avec l’importance qu’elle mérite. De même la question des sols, qui jouent un rôle clé dans la durabilité et la sécurité alimentaire est insuffisamment traitée (cf. rapports du GSP).

Le chapitre 4 vise à donner des pistes d’amélioration en faveur d’une meilleure sécurité alimentaire et d’un développement agricole durable. Un certain nombre de démarches ont déjà été mises en œuvre avec ces objectifs : agroforesterie, agriculture biologique, agro-écologie etc… pourtant elles ne sont pas étudiées par le rapport. De manière générale, ce chapitre se focalise sur l’amélioration des rendements comme réponse clé aux enjeux de la durabilité et de la sécurité alimentaire, sans intégrer la question des revenus, de l’emploi, de la réduction des inégalités dans l’accès aux ressources, à la formation etc. … La réduction des pertes et gaspillages est aussi un élément qui donne des marges de manoeuvre pour une transition vers des systèmes plus durables y compris s’ils sont un peu plus extensifs (moindre augmentation de production requise en réduisant les pertes). Les enjeux de nutrition (abordés dans la partie constat) disparaissent ensuite dans le rapport.

Le chapitre 5 sur les recommandations mérite d’être revu en profondeur, de façon à ce que les recommandations soient plus holistiques et plus précises quant au rôle du développement agricole durable (y compris l’élevage) sur la sécurité alimentaire et la nutrition.

Remarques particulières

Il nous paraît fondamental que le rapport se réfère au Droit à l’Alimentation qui est un des piliers du Cadre Stratégique Global du CSA, et qu’il se réfère davantage aux précédents travaux du HLPE et aux recommandations du CSA, notamment en ce qui concerne le foncier, avec les Directives volontaires pour une gouvernance responsable des régimes fonciers (VGGT) ou le récent rapport du HLPE sur l’eau et la sécurité alimentaire.

Il serait intéressant de se référer aux récents travaux de Wezel et al. qui traitent du concept d’agriculture durable, d’agro-écologie, d’intensification écologique :

www.fao.org/cfs/cfs-hlpe

Pages 18 à 20

L’encadré 2 sur l’intensification durable pose des questions intéressantes pour l’objectif de ce rapport qui ne se retrouvent malheureusement pas dans les recommandations.

Nous ne partageons pas forcément l’analyse du concept de souveraineté alimentaire, telle que présentée dans l’encadré 3. Celle-ci manque d’objectivité. De plus le lien entre ce concept et le thème du rapport n’est pas exploré.

Page 22: cadre conceptuel

Il est étonnant, pour un rapport sur l’agriculture que le facteur sol n’apparaisse pas dans le cadre conceptuel (figure 1) au même titre que l’eau ou les cycles de nutriments. Seule la gestion des terres et du foncier apparaissent comme facteurs de production.

Partie 3

Dans l’introduction de la partie 3, les priorités annoncées pour la durabilité environnementale comprennent à juste titre les pertes de biodiversité (« The priority environmental challenges are: reducing greenhouse gas production; reversing land degradation and biodiversity loss, [...] »). La thématique biodiversité n’est en revanche pas traitée dans le texte, la partie 3.3 ayant seulement une section « Land ». Il existe néanmoins une littérature spécifique, y compris des recherches incluant des scénarios à l’horizon 2030/50, qui devrait être synthétisée ici, e.g.:


Il nous semble important que le rapport approfondisse également les questions d’emploi agricole et péri-agricole (page 45), notamment dans des contextes de transition démographique où des millions de jeunes arrivent chaque année sur le marché du travail.

www.fao.org/cfs/cfs-hlpe
De même, parmi les challenges pour atteindre un développement agricole durable qui permette la sécurité alimentaire et nutritionnelle, il nous paraît important de traiter de l’évolution des inégalités à la fois sociales, économiques et territoriales en milieu agricole, pouvant conduire à des marginalisations de populations en termes d’accès à la terre ou à toute autre ressources naturelle et aux moyens de production. Ce sujet est abordé sous l’angle des inégalités de genre (page 47), qui un aspect fondamental de la question, mais ne peut y être réduit.

L'affirmation (page 48, puis p 52) selon laquelle les performances en terme de durabilité sont meilleures pour l’élevage intensif et spécialisé que pour l’élevage extensif mériterait d’être nuancée. L’élevage à l'herbe a démontré sa multi-performance (maintien des prairies...) lorsqu'il est bien mené.

Page 51, « livelihood risk » :

Il peut y avoir non seulement une compétition entre producteurs, mais aussi entre consommateurs (ex quinoa).

Page 52: partie 3.3.2

La partie 3.3.2 « Land » pourrait utilement s'appuyer sur le récent rapport de l'IRP qui donne une meilleure vue des contraintes en matière de terres pour une production agricole durable à l’horizon 2050, avec notamment une estimation des effets de modification des régimes alimentaires par rapport aux produits carnés:


La partie actuelle ne reprend que des références relativement anciennes des estimations des besoins de terres dans les années à venir par rapport aux disponibilités. Un certain nombre de travaux sont aussi en cours sur la manière de restaurer les pâturages (GASL), qui sont essentiels pour les pasteurs du Sahel notamment.

Les conclusions (3.5) ne peuvent se borner à noter la complexité des questions. A nouveau, on voit que cette partie se focalise exclusivement sur l'élevage, ce qui n'est qu'une partie de ce qui est demandé.

www.fao.org/cfs/cfs-hlpe
La liste des questions clés / choix devrait être revue en profondeur : elle ne problématiser pas les questions, mais oppose les options. A titre d’illustration, il est étonnant de lire que le « land sharing » conduit à un « patchwork d’agriculture de faible intensité » (alors que l’agroécologie est très intensive) en opposition au « land sparing » qui impliquerait une « agriculture durable intensive »

De même, réduire la question de l’adoption de « nouvelles technologies et pratiques » à une gestion de risque opposant régulation et principe de précaution, sans aborder les questions d’accès, de formation, de coût financiers, d’évaluation coûts/bénéfices est inapproprié.

Nous ne partageons pas forcément l’affirmation suivante « without the large scale operations the very existence of the small and intermediate operators would be in question (as would the sustainability, livelihood and other benefits that are claimed to be associated with these system ». Il nous semble impératif que cette affirmation est maintenue d’expliquer davantage les données sur lesquelles elles se basent.

Il conviendrait d’ajouter l’accès aux ressources et à la formation / vulgarisation. La dernière puce « provide and disseminate science-based evidence on novel technologies » devrait être revue.

Economic challenges : inclure la question de la gestion du risque économiques.

Health and animal welfare : il conviendrait de se référer au concept « One health », et d’ajouter la question de la résistance antimicrobienne (AMR).

Crosscutting challenges : « property rights » n’est pas le terme le plus adapté puisqu’il n’englobe pas l’ensemble des droits d’usage et des droits coutumiers. Il serait préférable de faire référence à « land tenure rights » et de citer les Directives volontaires pour une gouvernance responsable du foncier (VGGT).
Cette partie n’intègre pas la dimension Acteurs (consultation, participation, arbitrages...).

Page 68 - partie 4.6 :

Il conviendrait de supprimer la phrase « for example, preserving a way of life for smallholders may be at the expense of economic efficiency, while switching from red to white meat consumption could result in health benefits, cheaper sources of protein and a reduction in greenhouse gas emissions ».

Box 9 : exemple intéressant. Il serait utile dans la figure 11 d'avoir également l'évolution des émissions totales du secteur.

Page 71 - Box 10 : tonalité étonnamment critique alors même que l'exemple n'est pas illustré.

Page 73 - Box 12 : il serait utile d'illustrer aussi le système agricole et alimentaire de ces communautés indigènes.

117. Lin Ding, Permanent Representation of P.R.China to the United Nations Agencies for Food and Agriculture in Rome

To the Secretary of the HLPE,CFS,

We understand that the V0 draft report of Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock is publicly available on the HLPE consultation platform on the website of CFS.

Due to the continues communication with our capital for some days more, we here have some additional comments and revise suggestions below which we would like to share with you and contribute for any help of the last version’s release, and also for your reference for the further precise research work and how to make closely cooperation with Chinese experts.

Please find all the comments followed with the pagemark which help you to finding them.

V0 DRAFT REPORT

Page. 13. In relation to chemicals, the cause can be either illicit additives, such as the melamine introduced into powdered milk in China, or additives introduced to achieve specific properties such as taste, longer shelf-life or appearance.

Response: We don’t think it is convenient for you to express like this way, such melamine event in China is not unique issue in the world, it contributes to the amplification effect by the public medias which chase their explosive effects and audience ratings as well.
As a professional report, this V0 draft report should align with the principle of objective and impartial that FAO and CFS insist.

We suggest delete the sentence followed: such as the melamine introduced into powdered milk in China.

Page. 15. There has, however, also been a reverse trend in some other countries including some large non-OECD economies such as Indonesia, the Russian Federation and China, which are moving from effective taxation of agriculture to becoming significant subsidizers, in some cases approaching OECD country levels, and with the potential for the same damaging impacts on poorer countries’ agricultural interests.

Response: We suggest delete the sentence followed: in some cases approaching OECD country levels, and with the potential for the same damaging impacts on poorer countries’ agricultural interests.

Page. 51. In China, for example, food production is said to be dominated by “elephants and mice”; in other words, a great majority of informal sector actors who are difficult to monitor and a few large companies that have incentives to escape or capture regulation (Alcorn and Ouyang, 2012). These structural challenges are compounded by generally poor capacity to enforce regulation in many developing countries.

Response: Consider with the objectivity of the text content, it may be true, but does not mean all, we believe it does not represent the views of mainstream and authority. It may be misled some readers who are not fully understand the so-called structural challenges.

CFS should not intake all the “special” views from some experts as its formal proposal or decisions in the future and with freely.

We suggest delete the whole paragraph above.

Page. 56. In China, recent years have seen: the use of melamine to increase the apparent protein level of baby milk; ink to colour noodles; and sodium borate used to make cheap pork resemble beef (GFSF, 2011). A meta-review of studies of acute food poisoning sourced from Chinese academic databases for the period 2000–2010, covering 2,387 individual incidents of acute food-borne illnesses, found food additives were responsible for 9.920 percent.

Response: These above are some of the more extreme examples, actually, we can also find and would like to share with you more examples with more negative effects from some countries even some developed countries as well.

Please kindly noted that if your opinion could not cover all examples, please don’t make one or two countries to bear all the responsibilities of the crisis that we all face. And more, the Chinese academic databases which you cited should be clarified as the standard reference articles annexed.

We fully suggest delete the whole paragraph above or clarify the second half of the paragraph in page 56.
118. **International Livestock Research Institute (ILRI)**

The International Livestock Research Institute (ILRI) welcomes the opportunity to comment on the draft report. We very much welcome the focus on livestock which often gets little balanced attention in debates about sustainability of agriculture.

Overall we believe the team has done a good job in assembling this overview of the key drivers and changes in the agriculture sector with a specific focus on the livestock sub-sector and the critical importance of these for sustainable food security in the future. The recognition of the complexity of the livestock sub-sector, and thus diversity of challenges and solutions is also welcome. However this could also be a shortcoming if attention is not paid to clearly articulating the constructs and keeping those threads connected throughout the document – there are rather too many different frameworks etc.

In relation to the invitation to respond to specific questions posed we have the following comments:

- There is a mis-match between the title of the report and the balance of the content in different chapters between agriculture generally and livestock. The title suggests a more comprehensive treatment of agriculture in general than is the case. While some of the report deals with agriculture the majority of the report focusses on livestock. The opening sentence on Chapter 3 is very explicit that it focusses on livestock. So much of the background information, trends, drivers and analysis is about the livestock sub-sector, but the responses to the challenges in Chapter 4 and most of Chapter 5 are mainly about the agriculture sector generally with little specific reference to livestock. We believe that that it would be better to be clearer about the focus on livestock in the title of the report, e.g. ‘Sustainable Agricultural Development for Food Security and Nutrition; he Role of Livestock’. Then the overall agriculture sector can be included and discussed where it either impinges on the livestock sector or there are lessons to be learned.

- The context, trends etc. are well articulated.

- The classification of livestock systems is fairly ‘traditional’ and static and does not take account of the dynamics now and into the future. While we recognise that it is necessary to keep the classification simple, it might be worth thinking about the trajectories that livestock systems are on. The ILRI Strategy 2013-2122 identifies three broad trajectories (Annex 1) [https://cgspace.cgiar.org/bitstream/handle/10568/27796/ilristrategy2013_print.pdf?sequence=11](https://cgspace.cgiar.org/bitstream/handle/10568/27796/ilristrategy2013_print.pdf?sequence=11)

The two volumes Livestock in a changing Landscape: look at different trajectories and may give some additional information.

A recent EU report may also be useful

- Some consideration of the new opportunities (and challenges) offered by new biosciences would be helpful. For example, new genomic and breeding technologies could transform not only productivity but also help livestock systems to mitigate and adapt to climate change, including disease resistance. New second generation biofuel technology could revolutionise monogastric feeding and reduce competition between livestock feed and human food.

- Yes a decision-making framework is useful

- The case studies are dominated by developed and emerging economy countries. Other examples could be:

  Operation Flood (small-holder dairy development in India). Much has been written about it.

  Backyard poultry development in Bangladesh by BRAC Zambeef in Zimbabwe is a private sector initiative.

  Lack of data is a real challenge. On gender, the book ‘Women, livestock ownership and markets: Bridging the gender gap in eastern and southern Africa’ by J. Njuki, J. and P.C. Sanginga gives a good overview.

11. There is a dearth of information on livestock data. A good overview with recommendations for the way forward can be found in Investing in the Livestock Sector: Why Good Numbers Matter.

12. Other comments:

  The conceptual framework (Fig 1) does not convey a very clear message.

  The increasingly important role of the private sector in driving development warrants more attention.

  Many small holder systems can be considered intensive too, e.g. backyard pig production in SE Asia which are posing some of the same challenges as in the industrial sector (page 43/line 25).

  This also presents an opportunity to influence positive transition (page 43/line 39).
Welfare can also be comprised in extensive systems (page 52/line 21). It could be compromised by poor nutrition, high disease burden, extreme climate (hot or cold) and in extreme cases by high mortality, for example due to drought.

Land degradation has many causes beyond livestock (page 52). See for example presentation at a recent World Food Prize event 2015 (https://www.flickr.com/photos/ilri/15641105035/in/photostream/).

Proper grazing management – ie including livestock is necessary to get the best C sequestration (page 52/line 48).

The social category of the challenge matrix (page 59) is a very mixed bag. Is there a more logical way of organizing this?

Annex 1

Livestock subsector trajectories
This strategy expands the previous focus to include livestock-based options that help people to meet their food and nutritional as well as economic needs while mitigating their livestock-associated environmental and health threats. It recognizes three scenarios of livestock systems change, but focuses ILRI’s efforts on the first two, in particular the first. These were chosen based on the likely transformations of major livestock systems of the poor in this decade and livestock-sector growth scenarios derived largely from a High-Level Consultation for a Global Livestock Agenda to 2020, co-convened by ILRI and the World Bank in early 2012.

Strong growth systems: There is urgent need to develop sustainable food systems that deliver key animal source nutrients to the poor while facilitating a structural transition in the livestock sector of developing countries. This entails a transition from most smallholders keeping livestock in low-productive systems to eventually fewer households raising more productive animals in more efficient, intensive and market-linked systems. These mostly mixed smallholder systems now provide significant animal and crop products in the developing world and are likely to grow the most in aggregate. In many parts of Africa and Asia, the transition is happening slowly, with smallholder marketing systems still largely informal, although there are pockets of more rapid change in higher potential systems with good market access. ILRI and its partners are working to make this transition as broad-based as possible, helping those who can to continue on their path to sustainable, highly productive and resource-efficient smallholder systems, or to accumulate sufficient capital to exit from agriculture without falling back into poverty. This research aims to develop and upscale practices, strategies and policies that support inclusive growth and maximize the wellbeing of people and the environment, now and in the future.

Fragile growth systems: It will not be possible to create the same level of opportunities for rapid, market focused growth for all poor livestock keepers, especially in areas where growth in productivity is severely limited by remoteness, harsh climates or environments, or by poor institutions, infrastructure and market access. In these livestock systems, what is urgently needed are nuanced approaches that, where appropriate, help achieve incremental growth in livestock
production and market engagement that matches well with the natural resource base. In other situations, rather than productivity, the emphasis will need to be on enhancing the important role livestock play in increasing the resilience of people, communities and environments to variability in weather, markets or resource demands. Livestock research will help people make better use of their livestock-based livelihoods to feed their families and communities, protect their assets and conserve their natural resources.

**High growth with externalities:** In parts of some developing countries, particularly in Asia, where dynamic markets and increasingly skilled human resources are already driving strong growth in livestock production, fast changing small-scale livestock systems may be damaging the environment, exposing their communities to increased public health risks, and furthermore excluding participation of those livestock keepers and sellers living in deepest poverty. In these circumstances, what is urgently needed is an understanding and anticipation of all possible negative impacts of small-scale livestock intensification. Research can help promote or generate the incentives, technologies, strategies and product and organizational innovations that will mitigate health and environment risks while supporting the poorest people to comply with increasingly stringent livestock market standards.

119. **HLPE Steering Committee**

Dear all

On behalf of the HLPE Steering Committee and Project Team, we would like to thank all of you for your contributions in commenting on the V0 draft of the report. The high number of responses received clearly shows the importance of the topic, and the complexity and breadth of the issues tackled by the report. The proposals for improvement and the detailed comments, evidence and references provided are extremely valuable to the work of the HLPE. The HLPE is now extensively reviewing all contributions received to finalize the report. The publication of the final report is foreseen for June 2016.

Thank you for the time and interest taken to contribute to this important dialogue.

Best regards.

For the HLPE Steering Committee, Joanna Hewitt, Steering Committee member, Convener of the Steering Committee oversight for the report.

For the HLPE Project Team, Wilfrid Legg, Project Team leader