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Critical and Emerging Issues for Food Security and Nutrition

Synthesis of the Inquiry

A note by the HLPE Secretariat, 27 April 2014

Summary

The CFS requested the HLPE to produce a note on Critical and Emerging issues for Food Security and Nutrition.

As for other HLPE studies, a central element of the evidence-based work consisted of documented inputs by the scientific community and a wide range of knowledge networks and knowledge holders, through a public inquiry.

This document synthetizes the results of the inquiry conducted the HLPE. The documents for the inquiry (notice and questionnaire) are attached to the present note.

Outline

1) Objectives and Methods

The Committee on World Food Security, the foremost intergovernmental and international evidence-based and multi-stakeholder platform for food security and nutrition, mandated its High Level Panel of Experts on Food Security and Nutrition (HLPE) to "*identify emerging issues, and help members prioritize future actions and attentions on key focal areas*" (CFS reform Document, 2009).

At its plenary session in October 2013, the CFS requested the HLPE to produce *a* ***Note on critical and/or emerging issues in the area of food security and nutrition*****.** This request came in the context of the CFS's own ongoing discussion on the selection and prioritization of its activities[1], with the aim for the HLPE note to be a useful background to inform CFS 41 Plenary (October 2014).

1.1 Challenges

Identifying, from an evidence-based perspective, critical and emerging issues in the area of food security and nutrition comes with specific challenges.

First, to start with an academic point of view, there are many disciplines involved in the identification and framing of relevant issues, and there are many different ways to relate them to the four dimensions of food security. Issues vary by discipline, from environmental or food sciences and agronomy to economics, political sciences and other social sciences. Each discipline further brings its own vision, focus, concepts, and interpretation of food security and nutrition issues, framed and focused by specific methodologies and approaches. Reinforcing, but also diverging views can emerge from this confrontation of disciplinary approaches.

Second, agriculture, agricultural knowledge, science and technology, food security and nutrition have often been considered detached from other sectorial issues (environment, transportation, energy, etc.) since several decades, but are now, in practice, increasingly interacting with them: issues can emerge specifically due to increased interdependencies.

Third, issues can emerge in the future – therefore needing to be anticipated, and not only dealt with ex-post. This requires the use of specific methods to identify them, such as foresight tools.

Fourth, contexts are continuously changing and issues vary over time, as well as the knowledge about them, sometimes unexpectedly. Any attempt to identify, at one point in time, a range of present or foreseen issues, will thus have to be recurrently updated. Finally, knowledge on important and emerging issues comes from science and academia, but also from evidence-based knowledge of social actors, and from field practice. The HLPE recognizes the need to acknowledge and work with distinct, evidence-based, knowledge systems, while accepting the real challenge this objective presents, inter alia when it comes to assess the quality and validity of such knowledge.

1 In the CFS context, a clear distinction needs to be made between (i) issues of relevance to food security and nutrition, which are the object of the present knowledge-based exercise by the HLPE, and (ii) CFS activities, which are not the object of the present exercise as they are discussed and decided upon at the level of the CFS, by its own, distinct processes.

1.2 Methodology

The HLPE has devised a specific process[2] to tackle this request, described in a Concept and Process note (9 January 2014). The objective of the work by the HLPE was to provide a comprehensive, transparent, rigorous, knowledge-inclusive and evidence-based perspective on Critical and emerging issues for food security and nutrition, informed by a diversity of knowledge-holders.

To inform the work of the HLPE Steering Committee, and to constitute an evidence-based starting point, the HLPE conducted between 15 January and 15 March 2014 an Inquiry to seek for documented critical and emerging issues for food security and nutrition. A questionnaire (Annex 1) was sent to a diversity of scientific and knowledge institutions, organizations, networks of global and regional importance. In addition, a public call to participate to the same Inquiry was made towards all interested knowledge-holders.

Respondents were requested to first describe the issue in just a few lines (section 1 of the questionnaire), as well as the underlying methodology and approach used for its identification. Further evidence and references were also important and could be added in a specific field at the end of the questionnaire (in section 6).

The issues brought forward in the questionnaire could be either “challenges” or “opportunities”, or both, simultaneously, depending on the specific context, for example depending on the region or kind of impact studied. Whether the issue is a challenge and/or an opportunity, the questionnaire allowed the respondent to propose one or more “solutions” which in the respondent’s view would lead to overcoming the challenge or taking the opportunity.

In section 2, respondents were invited to categorize the issues according to the following broad typology: (i) is the issue an external driver or internal to food systems; (ii) what is the primary dimension of the issue itself, and (iii) what is the primary dimension of the impact on food security and nutrition. For these two questions, respondents were invited to precise the main category according to the classic dimensions of sustainable development: economic, social, governance (including institutions and rights) or environmental dimensions, or to specify one other main dimension.

In section 3, respondents were invited to detail how, and to which degree, the issue affects different aspects of food security and nutrition. This section helps to characterize the issue: first, by indicating whether and how much the issue affects one or several of the four “classical” dimensions of food security, and second, by giving information on additional attributes:

- Whether the issue affects food and nutrition systems as a whole or specific, critical parts?
- The breadth of the issue — how many people are affected?
- The scale of the issue: local, regional and/or global?

[2] The HLPE would like to thank warmly the following experts having provided useful comments on the process itself: Ousmane Badiane, Joachim von Braun, Jonathan Brooks, Joanne Daly, Shenggen Fan, Charles Godfray, Bernard Hubert, Richard Mkandawire, Martin Pineiro, Jules Pretty, Rudy Rabbinge, Maruja Angelica Salas, Tom Wakeford and Michael Windfuhr. The HLPE alone is responsible for the final process..

- The effects of the issue on already marginalized and vulnerable peoples or groups.
- Whether there are gender specific effects, any specific effects on mothers, on children?

In section 4, the questionnaire asked about the time scale of both the issue raised and the actions needed to address it (short, medium and/or long term)?

In section 5, the respondents were invited to provide an estimation of the degree of confidence on the above assessment: this is an evaluation of the quality of the understanding of the issue presented and of its impact on food security and nutrition, in terms of the currently available evidence.

Finally in section 6, respondents could provide additional supporting information, such as references, indication of knowledge gaps.

The present document summarises the result of this Inquiry.

2) Statistics of the Inquiry and general points

2.1 Statistics

The HLPE solicited 77 knowledge organizations, institutions and knowledge networks to provide inputs. The list is to be found in Annex 2. Out of these, 25 replied, submitting a total of 90 issues.

In addition, the HLPE received 42 issues from the public enquiry (from 28 different sources).

Therefore, overall, a total of 132 issues have been collected from 53 different contributors, totalling more than 580 pages.

The full list of issues submitted is reproduced in Annex 3, distinguishing the ones coming from the solicited knowledge organizations (K) and the ones coming from the public consultation (P).

The table below gives the regional statistics of inputs:

	Knowledge		Public	
Region	**# of org.**	**# of contributions**	**# of org./experts**	**# of contributions**
Global	14	37	12	16
Africa	1	1	3	3
Asia	1	6	1	1
Europe	2	15	9	19
Latin America	1	6	1	1
North America	5	22	2	2
SW Pacific	1	3	0	0
Total	**25**	**90**	**28**	**42**

2.2 General points

In general, the results of the Inquiry show a good understanding of the nature of input sought and intent of the questionnaire. It seems the questionnaire met its objective to provide good guidance to the participants for them to provide views on how the issues presented would link, according to them, to the various dimensions and aspects of food security and nutrition, with, as far as possible, documented evidence for this.

Many of the issues were presented not in isolation but as part of a wider, more systemic questioning, or as being one element of the food system. Most of issues are presented as being "internal" to food systems, or as having an internal dimension. Few issues are presented as purely external to food systems. However the limits of the food systems and what relates to "internal" and what relates to "external", is diversely understood by some contributions. In some cases "food system", by some organizations, was assimilated to a "sub-system", focused on the issue presented or circumscribed to the sub-system of study (by the respondent). In such cases issues internal to food systems, at large, were probably mis-classified as labelled "external".

3) Organizing results: thematic clusters of issues and links to FSN

3.1 Organizing issues

Issues presented range from a broad, systemic level, to more circumscribed themes. Therefore a first way to go through the issues is to define big thematic clusters.

A first **"systemic"** cluster gathers issues which, as presented, are very broad and general, or more systemic or complex. Submissions focusing on cross-cutting issues related to links between urban and rural areas, related trends and challenges for food security are included in that category. Issues linked to global development are also included in this first cluster.

Then, the issues were fitted into thematic clusters, defined according to the stages in the food chain (from resources to consumption) and according to the main "nature" of the issue with the dimensions generally used to define sustainable development (environmental, economic, social and governance).

- **Resources and environment** (including land, water, marine/fishing, energy, genetic resources, etc.)
- **Production** (including animal, plants, production systems and innovation, losses, etc.)
- **Consumption** (including demand, changes in food systems, nutrition, food safety, etc)
- **Economic organization and trade**
- **Social** (including migration, employment, youth, gender etc.)
- **Governance**

A dimension was added to highlight issues related to **conflicts and crisis.**

One cross-cutting cluster is defined for issues related to **knowledge**, being knowledge generation or transmission.

The choice was made, for better clarity, to associate one issue to one unique "main" cluster. However clusters can relate to each other and issues relating to a cluster can also relate to other, being at the intersection of two (see Fig 1).

Table 1 lists the issues presented by clusters, and sub-clusters

Table 1 List of issues by thematic cluster

Thematic cluster		Sub themes	Issues
Systemic	G1	Systemic and complexity	K4A, K5D, K7A, K19F, K20B, K23A, K24A, K25A, P4A, P12A, P15AB, P29E, P29K
	G2	Development	K5B, K20A, P6A, P28A, P29B
Resources and environment	R1	Climate change	K2A, K9A, K12G, K21B, K21K, K21M, K24B, K24I
	R2	Land	K3A, K12E
	R3	Water	K3B, K3C, K12D, P13A
	R4	Marine/aquatic	K12H, K21G
	R5	Energy	K21C
	R6	Genetic resources	K21F
Consumption	C1	Food demand	K6A, K21D, K24G
	C2	Nutrition	K2B, K10C, K8A, K8B, K10F(o) K12J, K15A, K15B, K16A, K18A, K19D, K22A, P5A, P17A, P19A, P20A
	C3	Food safety	K19A, K20C, K21E
Production	P1	Production general	K6B, K11A,
	P2	Losses	K6C, K10B, K12I, K19E
	P3	Animal	K1A, K1B, K13A, K12F, K13A, K14A, K17C, K19C, K20D, P18A, P23B, P29D, P29J, P21A, P23A
	P4	Plants	K9B, K9D, K9E, K10D, P2A
	P5	Production systems and innovation	K5A, K9C
Economic organization and Trade	E1	Trade	K10E, K12C, K17A, K17B, K5E, K21H, K21J, K21L, P10A,
	E3	Food Chains Organization and markets	K7B, P29H
	E2	Finance and credit	P6C, P7A, P29C, P24A, P30A
Social	S1	Migrations	K21A
	S2	Employment	K5C, K21I, P26A, P29F
	S3	Social Protection	P8A
	S4	Gender	P29A
	S5	Youth	K5F
Governance	Gov1	Governance and rights	K10A, K12B, K20E, P1A, P9A, P27A, P29G
Conflicts, crisis	Cr	Conflicts, crisis	P14A, K20F
Knowledge	Kn1	Data and knowledge generation	K24C, K24D, K24E, K24F, K24H, P11A, P22A, P29I
	Kn2	Research	K11B, K12A,
	Kn3	Education, training, capacity building	P3A, P6B, K19B, P25A

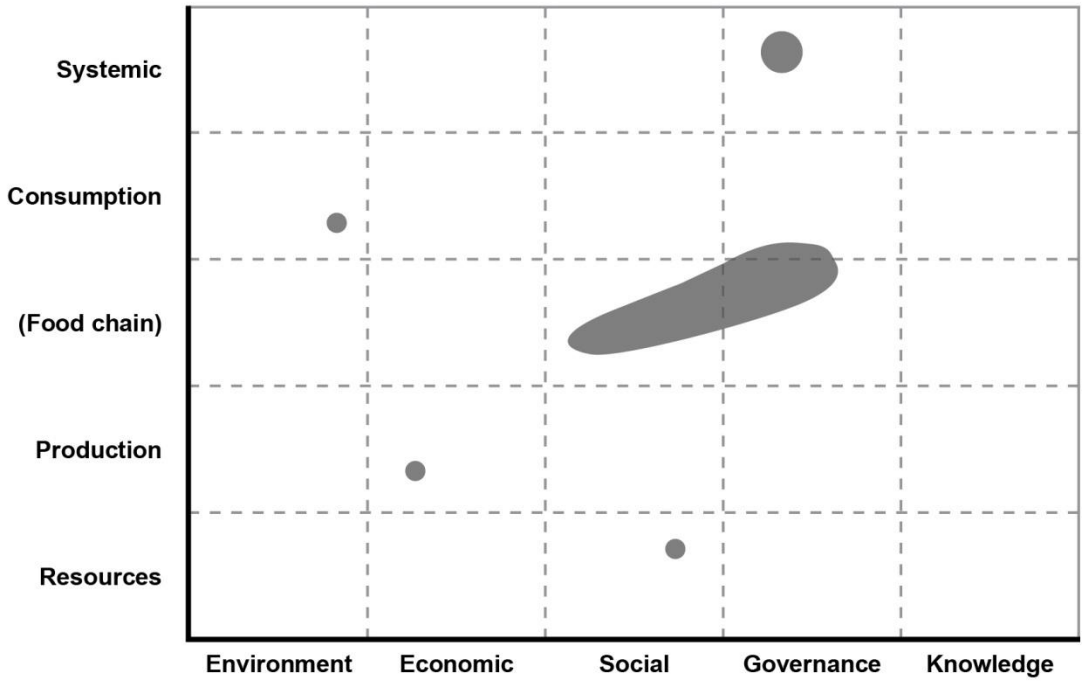

Figure 1 Schematic representation / mapping of the issues into clusters*. In this Figure, the first dimension in the X axis regroups clusters/areas across the dimensions of sustainable development: environment, economic, social, governance and knowledge. The Y axis, second dimension regroups clusters/areas following the food chain from resources to food consumption (and other uses). Issues can be represented in this map either by a "dot" or by a "surface" for more complex, multidimensional issues. Systemic issues in principle will touch many if not all of the X and Y dimensions. All issues have an impact on food security and nutrition: these impacts are not represented in the figure: this would add in fact another (or several) perpendicular dimensions, for example in a Z axis.*

3.2 Understanding issues as relating to the various dimensions of FSN

All of these issues were documented, in the submissions and as per the questionnaire, regarding their impact on food security and nutrition, in various dimensions.

Therefore, for each issue, we can document a key dimension Z which regards its impacts on food security and nutrition, in its four dimensions, as well as the other specific impacts (vulnerable groups, etc.). For one issue, there can be one main impact and several subcategories of impacts.

Respondents were invited to detail how, and to which degree, the issue affects different aspects of food security and nutrition.

First, by indicating whether and how much the issue affects one or several of the four "classical" dimensions of food security. A first remark is that the vast majority of the replies mentioned an impact across the four dimensions. Some replies mention a stronger impact on one of the four dimensions, availability or accessibility, or, more often, either stability or utilization. In this respect, there are homogeneities within the clusters defined above and differences when comparing two clusters.

Second, by giving information on additional attributes:

- Whether the issue affects food and nutrition systems as a whole or specific, critical parts?
- The breadth of the issue — how many people are affected?
- The scale of the issue: local, regional and/or global?
- The effects of the issue on already marginalized and vulnerable peoples or groups.
- Whether there are gender specific effects, any specific effects on mothers, on children?

4) Synthesis of the issues presented by clusters

4.1 Systemic

Most of the contributions characterized the issues presented as having multiple dimensions, and often as being systemic rather than being limited to a critical point in the system.

One contribution (K4A) underlines that global food security is multifaceted and influenced by a wide range of factors and policies, with the need to raise incomes of rural households to improve poor's access to food, complemented by health and sanitation policies, stimulation of sustainable productivity to contain food price increase and facilitation of trade.

Another one (K25A) called for the need to recognize the multifunctional nature of agriculture to ground an integrated approach to agriculture and food security.

Several contributions focused on the systemic changes that food systems have to address, some of them, focused on specific aspects figure in the related sections. One of them (K19F) calls for a system approach to food and agriculture challenges of the 21st century to address drivers of global change, including climate change but also organizational issues. Among these figure urbanization in developing countries and the changes induced by urban transformation on food systems and rural development (K7A, K24A). It includes better understanding urban food insecurity (K24A).

Ongoing changes in the organization of the agrifood sector are expected to have major impacts on food security and nutrition; these dynamics need to be better understood particularly as they are now expanding in new countries (K20B, P29H). Also there is a need to better understand market to consumer linkages particularly in order to promote a food basket approach to diet diversity through promoting nutrient dense foods like legumes (K23A). The issue of the interactions between diets and markets leads to question what could be the role of public policies (P29E).

One contribution (P29K) suggests to better analyze what agricultural models could better address challenges of food security and climate change. Urbanization and industrialization can promote agricultural modernization and development through new producing bodies such as large scale farms and cooperatives (K5D).

Contributions through the public consultation underline the need for major changes towards sustainable food systems (P12A), and to implement "food innovations" (P4A), as well as the need to establish country level plans for food security based on analysis of food production and consumption and population growth (P15A).

Some contributions focus on the links between agricultural development and food security, stressing the need to frame agricultural development towards improving food security and

nutrition (K20A, P28A, P29B) and the need to prioritize agriculture in the context of the post 2015 sustainable development goals as the primary driver to abate hunger and reduce poverty (P6A). On the other hand, choices of development pathways will impact food security through their effects on urbanization, technology development and climate change (K5B).

4.2 Environment and Resources

Several contributions (K2A, K9A, K21B, K24I, K21M) emphasize the challenge that climate change poses for food security in all its dimensions, particularly for most vulnerable people. Some focus on specific issues, drought and heat stress (K24I), dry land areas (K24B), impact on fisheries, including ocean acidification (K21K). One contribution (K12G) invites to question how agriculture could reduce its emissions of GHG, particularly of methane.

Contributions highlight increasing scarcity of resources as a concern for ensuring FS.

The expected rise in demand for food, fibre and fuel will increase the pressure on land (K12E). Land degradation and soil erosion are exacerbating food insecurity (K12E), particularly in fragile environments such as arid and semi arid (K3A).

Water scarcity is identified as a major challenge (K12D), even more in dry areas (K3B), with strong impacts, particularly on the most vulnerable, on women and children. It calls for better management of ground and surface water (K12D) including through protecting and restoring the ecosystems on which it depends (P13A).

The degradation of marine ecosystems (K12H) as well as overfishing, including illegal, unregulated and unreported fishing (K12G) are mentioned as threats for FSN, particularly for the populations depending on fisheries and aquaculture for their livelihoods.

The interrelations between energy and food is mentioned with a double angle, energy needs of food systems, as well as potential contributions from the agricultural sectors to energy supply (K21C).

Genetic resources, and in particular the way intellectual property rights are implemented seems an issue of importance, which could have either negative or positive effects (K21F).

4.3 Consumption

The increase of food demand (K6A), with an important component due to the evolution of food consumption patterns towards a larger share of animal-based products (K24G), driven by income growth and uniformisation of tastes and preferences (K21D) is a global, systemic concern, with far reaching consequences.

Many contributions stress the importance of nutrition issues.

It includes the need for more balanced and healthy diets and to improve nutrition (K12J, P17A), especially for vulnerable people (K12J) and in some regions, including Africa emerging middle income economies (K16A), with adequate dietary diversity to improve nutrition of low income populations (K19D), including in situation of crisis (K22A). Of particular importance is children malnutrition (P5A, P17A).

A major concern is the double burden of under nutrition and obesity (K2B, K18A), particularly in some regions and countries (K10C, K16B), and the growing prevalence of unhealthy diets, obesity and diet related non communicable diseases (P19A, P20A). It calls for reshaping

food systems (K15A), inclusion of nutrition sensitive approaches in agriculture policies and projects (K15B, K22A), nutrition sensitive landscapes (K8A) and measures such as including micro nutrients in fertilizers (P17A), as well as promoting more sustainable diets and food systems (K8B) and developing nutrition education at all ages (K10F). It will require to better understand the drivers of food consumption changes (K18A).

An additional concern is improving food safety (K20C, K19A, K21E), particularly at national level (K21E).

4.4 Production

To address increasing demand there is a need to increase food production (K6B, K11A), including by expanding land in production, irrigation supply, aquaculture production, closing yield gaps in crops and livestock production, improving land and water efficiency and lifting genetic potential (K6B).

Reducing food losses and waste (K10B, K12I, K6C, K19E) is a way to increase food availability, increase income of farmers and reduce pressure on natural resources.

Livestock production has been identified by numerous contributions as a key issue for FSN, with different angles of approach. Some contributions point to the importance of the livestock sector to eradicate poverty and improve both access and nutrition (P18A, P23B, K14A, P29J) including through small scale chicken production (K19C) and development of aquaculture in West Africa (P23B), pointing to the need to better recognize small scale aquaculture (P23A). The importance and increase of livestock products consumption and its impact on global consumption of cereals is a key challenge (K12F, K20D, P18A, P21A) whith also social and animal health and welfare consequences (P21A). Several contributions underline the threats that animal infectious diseases pose to FSN (K1A, K1B, K14A, K13A, P29D), particularly including on income of some vulnerable populations (K1A, P29D) as well as the importance of zoonoses and foodborn illnesses (K14A, K13A).

Several contributions point to ways to increase plant production, by improving knowledge and use of genetic resources (K9B), including underutilized crops such as quinoa (K10B), develop wheat production in Africa to reduce dependency to international markets (K9D), develop the use of leguminous and food trees (P2A). Emerging crop diseases, such as Maize Lethal Necrosis (MLN) and new varieties of wheat rust can constitute a threat for FSN (K9E).

In addition to the contributions mentioned above (P29K, K5D) on agricultural models and their contribution to food security, some other propose ways to improve productivity through Integrated Farm Management Systems (K5A) and investment in technologies for small farmers (K9C).

4.5 Economic organization and trade

The importance of trade, and of trade rules, is emphasized by several contributions (K10E, K12C, K17A, K17B, P10A, K21J, K21H, K21L). The instability of domestic/local markets creates a disincentive for investments in agricultural production and threatens accessibility and affordability of healthy foods (K10E). Lack of access to food markets for producers and consumers may put certain communities at risk of food insecurity and malnutrition (K12C). The growing market oriented economy in developing countries can be an opportunity or a challenge for smallholder farmers; it needs to be accompanied by good practices to enhance

smallholders' access to markets and value chains benefits (K5E). International trade rules should support FSN (K17A, K21J, P10A, K21L), including by allowing the establishment of local systems which can be threatened by international trade flows (K17B).

One contribution (P24A) notes that agricultural and food commodities, as well as land and natural resources are increasingly being traded as financial derivatives and suggests to analyze the impacts of it on food security.

On going changes in the organization of the agrifood sector are expected to have major impacts on food security and nutrition; these dynamics need to be better understood particularly as they are now expanding in new countries (K20B, P29H).

Lack of access of smallholders to resources (P25A) and especially to financial services impedes them to invest and improve their productivity (P7A, P29C, P30A, P25A).

4.6 Social issues

Several contributions highlight the importance of social issues for FSN

Migrations play an important role to ensure FSN, not only to escape poor living conditions but also as an element of household strategies, as shown by the importance of remittances (K21A).

Urbanization and rural/urban migrations will have important impacts on agricultural labor force, especially in some countries. In China it is expected that the labour force will gradually age and then abruptly decline in the next 20-30 years (K5C). In other cases, especially in Africa, but also in some Asian countries, where agriculture is a major economic sector and with high population growth, the agricultural sector is expected to have to provide enough jobs for an increasing workforce (P29F, P26A). To reduce poverty and improve all four pillars of food security there is a need to create sufficient decent rural employment (K21I, P26A).

Social protection can play a crucial role to ensure food access for poor. It could thus allow for food prices to increase which, if reflected equitably through the food chain, would stimulate farm investment and rural economic growth, thus reducing poverty and hunger (P8A).

Better understanding women's positions and roles in food systems can be key to improving FSN (P29A).

Rural youth are in some countries moving away from agriculture leading to ageing farmers and slow up take of innovation (K5F).

4.7 Governance

Several contributions focus on governance aspects, either from a broad perspective, at national or international level, or on more specific issues.

Lack of coordination and articulation of policies in countries impedes effective FSN policies (K10A). Urban areas can play an important role in designing local food policies (K20E, P29G). There is a need for equitable and inclusive technology formation, attending structural differences and discrimination (K12B). Design of smart governance arrangements, particularly at local level could increase the impact of global initiatives and facilitate the design of socio-technical solutions on the ground (P1A).

Some contributions suggest incorporating a rights based approach (P27A) as well as the food sovereignty concept (P9A).

4.8 Conflicts and crisis

One contribution underlines the impact of conflicts on FSN in the Republic of Centrafrica (P14A).

Contributions question the potential role of stocks to improve food security (K20F) and particularly household's resilience (P29I).

4.9 Knowledge

Many of the contributions mentioned above identify improved knowledge as a key element to address issues. There are also contributions focused on knowledge as an issue itself.

Several contributions point to the need for better food security and nutrition data at global as well as at country and local levels (K24C, K24H, K24E) and propose better monitoring of access to adequate nutritious food (P22A, P16A).

Some contributions point to specific knowledge and data needs, on food prices in developing countries to improve outlook (K24F) including through an assessment of the role of climate information on local price formation in West Africa (K24D), or on specific sectors such as for better data on artisanal fisheries (P11A).

Contributions also point to the need for more investment in agricultural research and development (K11B), including to enable more participative ways of developing research and innovation with local communities through appropriate tools (K12A).

More generally the need to generate and communicate relevant information to farmers (K19B), to build capacity (P6B, P25A), including by vocational agricultural training for young farmers in Africa (P3A) is underlined.

4.10 Issues and previous HLPE studies

One can identify five major sets of issues and which are also often linked to topics already mentioned within previous HLPE reports – but which have not been addressed as the subject of a study:

- Changing consumption patterns and food and nutrition security (esp. within categories C1, C2, C3, Kn1)
- Natural resources and food security (esp. within categories R1 to R6, Gov1, Kn1)
- Livestock and food security (esp. within categories C1, C2, P3, S2, G1, E1)
- Social changes in agriculture and food security (esp. within categories G1, G2, S1 to S5)
- Evolution of food systems, urbanization and globalization and food security (esp. within G1, C1, E1 to E3)

5) Sensitive issues for the most vulnerable

Most of the answers identify a specific impact on the most vulnerable, some with a characterization of the most vulnerable populations.

Generally, all issues identified as challenges are linked to strong impacts on vulnerable populations, with generally stronger negative marks than the one given for the average of the impacts on the 4 dimensions.

Conversely, opportunities, or things to be done to improve the situation, are shown to have a positive impact on the most vulnerable. It is however unclear from the results whether this positive impact is “more positive” or “less positive” than the one given for the average of the impacts on the 4 dimensions.

There were only few cases (35) where the impact on women was mentioned as different than the impact on vulnerable, often because one of the two was not answered.

6) Global versus local issues

61 issues are presented as having a global impact. 25 as having a regional or regional/local impact, often to underline specific impact. The rest of the contributions point to global and regional/local impacts.

7) Challenges versus opportunities

Many issues were presented as challenges only (47), but with the mention that they can be also opportunities as well as challenge at the same time (51). This highlights the fact that, according to respondents, there are means of action for each “challenge”, which may turn a priori negative impacts into improvements for food security and nutrition. Many elements presented as opportunities (26 issues were presented as strict “opportunity”) are linked to actions in research, capacity development, good practice and policies.

8) Solidity of knowledge base and knowledge gaps

For most of the issues the knowledge base is qualified medium or high. The low qualification is often attached to contributions which are precisely pointing to a lack of consideration and/or knowledge for a specific issue. Most of the contributions provide additional supportive information, often with references of publications.

9) Gaps in the results of the inquiry

The contributions provide a wide sample of issues, ranging from environmental challenges to social evolutions in the agricultural sector. The spectrum covered by the issues presented is broad (almost each “big theme” in relation with food security and nutrition is covered by one issue). Some of them are broad, other quite narrow. These last ones, for instance poultry production or impact of conflicts in Centrafrica could lead to identify a whole range of analogous issues or a type, such as small livestock production, or even diversification, or conflicts and crisis for instance.

Some issues seem to be missing. For instance there is not much on poverty and the way to reduce it, nor on development in general. There is not much on technological evolutions in the agricultural and food sectors. In the environmental area there is not much on biodiversity.

10) Costs and Timeframe of challenges and timeframe of solutions

Costs seem to have been described in relation to the experience of the contributors rather than with a general/global perspective. Answers to this question are thus not easily comparable. Some answers point to the fact that the cost of action is lower or much lower than the cost of inaction.

Most of the issues are described as having already an impact, with some of those having an increased impact at medium and long term. A significant number is considered as beginning to have an impact at medium term, more rarely long term (pressure on land and land degradation, access to finance). Whatever the time frame of impacts, the timeframe for implementing solutions is presented as being more short term, pointing to the importance of early action for most challenges.

Annex 1 (Questionnaire)

About the respondent

Name, Surname and Institution		
Dou you answer on behalf of your institution, or as an individual?	On behalf	As individual
Do you agree if this contribution is made available to the public as part of the proceedings?	Yes	No
Country of the responding individual/institution Please mention international or regional, the case being		

1. Overview of the issue

Issue *in 2 lines*			
Description of the issue *in less than 5 lines*			
Is the issue a *challenge* and/or an *opportunity* for FSN? *Please tick the appropriate box*	Challenge	Opportunity	It depends (please specify)
Methodology and approach used to identify the issue and assess its importance for Food Security and Nutrition *In less than 10 lines.* Additional supporting or describing information (literature, reports, expert report, analysis, etc.) can be provided in section 5 below.			

Main response proposed to address the issue	
Main actor(s) concerned or involved in the response proposed	

For the public inquiry fields below are optional

2. Broad typology of the issue

(*)	*External driver*	*Internal to food systems*	*Both*
Is the issue either or both?			Briefly mention how this may be the case

(*)	*Economic (and productive)*	*Social and Cultural*	*Governance (institutions, rights, etc.)*	*Environmental (resources, etc.)*	*Other (SPECIFY)*
Main nature of the issue					
Nature of the main impact of the issue on FSN					

(*) Please tick the boxes. Additional supporting or describing information can be provided in section 6 below.

3. Attributes of the Issue

	Classification (**)		
1. Depth: Is it relevant to food and nutrition systems as a whole, or specific parts of those systems?	Critical point	Systemic issue	
2. Breadth: Are there many people affected?	Few	Many	
3. Scale: local/regional/global?	Local	Region	Global
	Indicate here the precise location	*Indicate here the precise region*	
For items 4-11 below, please use the classification [— — , —, 0, +, ++]: Very negative (— —) / Negative (—) / Low (0) / Positive (+) / Very positive impact (++)			
4. Impact on Availability			
5. Impact on Access			
6. Impact on Utilization/ nutrition			
7. Impact on Stability			
8. Impact on most vulnerable people	Specify as appropriate		
9. Impact on women			
10. Impact on children			
11. Impact on marginalized populations	Specify as appropriate		
12. Cost to address the issue	Low	Middle	High

(**) Please tick the boxes or classify the impacts and provide synthetic data where required. Additional supporting or describing information, data, sources can be provided in section 6 below.

4. Time Scale

Timeframe (*)	***Now/Short term (1-5 years)***	***Medium term (5-10 years)***	***Long term (10-20 years +)***
Moment when the issue will have an impact			
Moment to act to address the issue			

(*) Please tick the boxes. Additional supporting or describing information can be provided in section 6 below.

5. Degree of confidence

Solidity of currently available knowledge base.	Low	Middle	High

6. Additional Supporting Information

Additional information
Evidence
Knowledge gaps
References

Annex 2 (List of knowledge institutions)

International (Global level) Research centers/network

1. CGIAR Consortium
   CGIAR Centers (15 centers)
   2. AfricaRice center (ADRAO/WARDA)
   3. Bioversity International
   4. International Center for Tropical Agriculture (CIAT)
   5. Center for International Forestry Research (CIFOR)
   6. International Maize and Wheat Improvement Center (CIMMYT)
   7. International Potato Center (CIP)
   8. International Center for Agricultural Research in the Dry Areas (ICARDA)
   9. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
   10. International Food Policy Research Institute (IFPRI)
   11. International Institute of Tropical Agriculture (IITA)
   12. International Livestock Research Institute (ILRI)
   13. International Rice Research Institute (IRRI)
   14. International Water Management Institute (IWMI)
   15. World Agroforestry Centre
   16. WorldFish Center
17. ICSU
18. IUFoST
19. GFAR

International (Regional level) Research centers/network

20. CORAF
21. FARA
22. ASARECA

National-level research institutions/networks/centers

23. CAAS
24. Royal Academy of Science (UK)
25. National Academy of Science (US)
26. CSIRO
27. ACIAR
28. CIRAD
29. AGREENIUM
30. IDS
31. Teagasc
32. Joint Research Center of the European Commission
33. Stockholm Environment institute
34. Institute for global food security, Queen's University, Belfast
35. Center for Food Policy, City University London
36. Center on Food Security and the environment, Stanford University
37. Mc Gill Institute for Global Food Security
38. MS Swaminathan Foundation
39. INRA (Morrocco)

Universities

40. Wageningen
41. Cornell University
42. UC Davis
43. UC Berkeley
44. Brasilia
45. Pretoria
46. Rio de Janeiro

47. Buenos Aires
48. Niamey
49. Cairo
50. Nairobi
51. Bern
52. Bonn
53. Oslo
54. Middle East Technical University (Ankara)
55. Universidad Andina Simon Bolivar
56. Imperial College of London

Think thanks and Expert panels

57. Millennium Institute
58. Montpellier Panel
59. Davos / WEF Food Security Panel
60. Members of the United Nations Commission on Science and Technology for Development (CSTD)
61. Institute for Agriculture and Trade Policy (IATP)

Indigenous knowledge networks

62. McGill University Center for Indigenous Nutrition and Environment
63. Natural Resources Institute at the University of Manitoba, Canada
64. Simon Fraser University, Indigenous Research Institute

International intergovernmental organizations

65. FAO
66. WFP
67. IFAD
68. IICA
69. World Bank
70. OECD
71. NEPAD
72. OIE
73. CIHEAM
74. UNRISD Director / Secretariat
75. UNCTAD Secretary / Secretariat
76. UNESCO
77. UNSCN

Annex 3 List of issues presented

Knowledge Organizations

Contributor	#	Issue
OIE	K1A	impacts of animal diseases on production, economy and health of vulnerable households
OIE	K1B	The risk of animal diseases is an obstacle to improving the productivity of poor farmers.
World Bank	K2A	Climate Change
World Bank	K2B	Developing countries have double burden of managing lingering under nutrition and emerging problem of obesity.
ICARDA	K3A	Land degradation / land management in the fragile arid environment
ICARDA	K3B	Increasing water scarcity in dry areas
ICARDA	K3C	Increasing water scarcity in dry areas
OECD	K4A	Global Food Security is multi-faceted
CAAS	K5A	Integrated Farm Management System (IFMS) Enhancing Sustainable Agricultural Development (SAD)
CAAS	K5B	Socioeconomic development pathway as a powerful policy option in long-term FSN regulation in China
CAAS	K5C	Who Will Farm in China in the Next Decade or Two?
CAAS	K5D	New producing bodies can accelerate the modern agricultural development
CAAS	K5E	Promoting Good Practice in Enhancing Smallholder Access to Markets and Value Chain Benefits
CAAS	K5F	Youth is escaping from rural and agriculture
CSIRO	K6A	Reducing the food demand trajectory
CSIRO	K6B	Increasing food production.
CSIRO	K6C	Avoiding loss in current or future production potential.
IFAD	K7A	Identifying drivers in the evolution of urban food systems and rural linkages
IFAD	K7B	Public-private and private-private partnerships in food production- what forms and practices work to the benefit of rural communities and small-scale producers?
Bioversity International	K8A	Developing Nutrition Sensitive Landscapes approaches for Policy and Programmes
Bioversity International	K8B	Policies and programmes for Sustainable Diets and Food Systems
CIMMYT	K9A	Climate change and agriculture
CIMMYT	K9B	Discovering genetic resources

CIMMYT	K9C	Investment in technologies for smallholder farmers
CIMMYT	K9D	Wheat: A strategic crop for Africa
CIMMYT	K9E	Combatting emerging crop diseases
IICA	K10A	The lack of coordination and articulation of policies and institutional framework for food and nutritional security (FNS) in the countries.
IICA	K10B	Food loss throughout the agricultural food chain.
IICA	K10C	The impact that nutrition transition has on efforts to achieve and maintain food and nutritional security in the region.
IICA	K10D	The importance of the environmentally and socially sustainable development of underutilized crops: the case of quinoa
IICA	K10E	Instability of domestic/local food markets.
IICA	K10F	The need for nutrition education at all ages to achieve and maintain food and nutritional security (FNS).
Gates Foundation	K11A	Sustainable Agriculture Productivity Growth
Gates Foundation	K11B	Investment in agricultural research and development.
Cornell University	K12A	Democratized research and innovation for inclusive and locally relevant food and nutrition interventions.
Cornell University	K12B	Equitable and inclusive policy and technology formation that attends to structural difference and discrimination.
Cornell University	K12C	Negative impacts of a lack of access to food markets and the absence of critical markets.
Cornell University	K12D	Chronic water scarcity and mismanagement of surface and ground waters.
Cornell University	K12E	Pressure on land-resource base and soil degradation
Cornell University	K12F	Sustainably improving global animal source food production/harvesting to meet increasing needs for balanced nutrition & livelihoods.
Cornell University	K12G	Adapting food production to meet the challenges of climate change.
Cornell University	K12H	Marine environments and resources are being degraded and lost by human activity.
Cornell University	K12i	Food wasted in consumption, production, storage and distribution needs to be reduced, recycled and re-used.
Cornell University	K12j	People need more than adequate calories – they need healthy diets, especially vulnerable people.
Board on Agriculture and Natural Resources National Research Council National Academy of Sciences	K13A	Increased foodborne illness and infectious disease risks caused by animal production.
ILRI	K14A	1. Importance of smallholder production and Informal markets for providing animal source food for food security and nutrition; 2. Emerging infectious disease, zoonoses and food borne disease and their impacts on food safety and nutrition.

UNSCN	K15A	Reshaping of food systems to contribute to the prevention and control of NCDs
UNSCN	K15B	Improving nutrition through agriculture and food policies
IFPRI	K16A	While global effort should continue to focus on Africa, malnutrition in emerging middle income economies has not been paid enough attention.
Institute for agricultural and trade policy	K17A	Ensuring multilateral and regional trade agreements support FSN commitments.
Institute for agricultural and trade policy	K17B	Barriers to Local Food Security
Institute for agricultural and trade policy	K17C	Impacts of industralized meat production and its global supply chain on food security
INRA	K18A	Food and nutrition transitions, the diversity of local situations to global trends
UC Davis	K19A	Consistent access to food that is safe to consume
UC Davis	K19B	The need to generate and communicate credible, relevant information with farmers in developing countries is fraught with challenges both at the research and the delivery ends. Researchers sensitized to the farmers needs and communication avenues that capture a demand led system are required.
UC Davis	K19C	Improving homestead and small farm chicken production to improve food security, nutrition and livelihoods of the rural poor.
UC Davis	K19D	How to ensure adequate dietary diversity while simultaneously meeting increased demand for food (calories) and coping with climate change.
UC Davis	K19E	Postharvest Losses
UC Davis	K19F	How to implement a systems approach to food and agricultural challenges of the 21st Century?
CIRAD	K20A	What are the agricultural development conditions that are conducive to food and nutrition security?
CIRAD	K20B	Role of the agro-food sector in food and nutrition security (FSN)
CIRAD	K20C	Under what conditions food safety contributes to improving food and nutrition security (FSN)?
CIRAD	K20D	Evolution of animal nutrition models and consequences on food prices
CIRAD	K20E	Governance of food and nutrition security by urban areas
CIRAD	K20F	What policy for the stocks for food security?
FAO	K21A	Migration is vital to rural livelihoods and promotes improvements in all imensions of food security
FAO	K21B	Climate change impacts on food security and nutrition. Increasing climate variability and climate change constitute an additional challenge to achieving food security. Assessments of climate change impacts on global-scale agricultural productivity show negative impacts on food security and nutrition, especially for tropical regions with high incidence of hunger and high vulnerability to food insecurity.

FAO	K21C	Energy and Agrifood sytems - What energy FOR and FROM agrifood systems?
FAO	K21D	The evolution of tastes and preferences in food markets of different parts of the world.
FAO	K21E	Most low income countries give inadequate attention to domestic food safety which is an essential basis for food security.
FAO	K21F	Genetic Resources and Intellectual Property Rights (IPR)
FAO	K21G	Illegal, Unregulated and Unreported (IUU) fishing
FAO	K21H	Trade strategies and associated trade policies constrain potential contribution of agriculture to FSN
FAO	K21I	Promoting decent rural employment (DRE) to reduce rural poverty and enhance food security.
FAO	K21J	Trade strategies and associated trade policies constrain potential contribution of agriculture to FSN
FAO	K21K	Climate Change and ocean acidification implications for fisheries and aquaculture
FAO	K21L	Expanding policy space in WTO provisions for food security interventions to end hunger and poverty
FAO	K21M	Assessments of climate change impacts on global-scale agricultural productivity show negative impacts on food security and nutrition, especially for tropical regions with high incidence of hunger
WFP	K22A	1. Nutrition sensitive spproaches across key sectors to maximize overall nutrition gains; 2. Ensuring nutrition resilience given changing patterns/new faces of large-scale humanitarian crisis/emergency operations
CIAT	K23A	Issues range from production to consumption side. Production and productivity of nutrient rich crops like legumes need to increase. A better understanding of market to consumer linkages (complementing farm to market links) and how it works is increasingly critical with rapid urbanization where market to consumer linkages influence diets of many urban and rural poor.
JRC	K24A	Increasing urban food insecurity underestimated and insufficiently analysed
JRC	K24B	Climate change impact on food security in dryland areas.
JRC	K24C	Food security data assessment and analysis quality often considered as second priority as compared to bigger picture analysis.
JRC	K24D	Assessment of the role of climate information in local food prices formation (in West Africa)
JRC	K24E	Limited micro/local level analysis of the Food Security and Nutrition issues
JRC	K24F	Medium term (5-10 years) Agricultural Commodities Markets Outlook in the Developing Countries
JRC	K24G	GLOBAL FOOD CONSUMPTION PATTERNS
JRC	K24H	Improvement of nutritional evidence and information

JRC	K24I	Drought & heat stress (D&H) hazard/risk management under Climate Change
UNESCO	K25A	The need to recognize the multifunctional nature of agriculture.

Public Contributions

Contributor	#	Issue
Wageningen University	P1A	The design of smart governance arrangements
Leakey	P2A	A cycle of environmental degradation and social deprivation causes a huge Yield Gap in crop yield
Norwegian University of Life Sciences	P3A	Vocational agricultural training for young farmers in Africa
Change Planet Partners Climate Innovation Foundation	P4A	Food Innovation – Opportunities and Challenges
University of Hawaii	P5A	The CFS should recognize the importance of current and evolving threats to the food security of infants.
International Agri-Food Network	P6A	Post 2015 Goals
International Agri-Food Network	P6B	Knowledge, Skills and Talent Development in the Agri-Food Sector
IAFN	P6C	Access to Finance
One Acre Fund	P7A	Lack of access to financing for smallholder farmers
Andrew MacMillan (FAO)	P8A	Whether the success of social protection in cutting hunger opens way for raising consumer food prices so that income from food sales becomes the main driver for rural poverty reduction and the shift to sustainable production and consumption systems.
Ministerio de Desarrollo Rural y Tierras	P9A	Incorporating food sovereignty, constitutes a challenge and an opportunity for national and regional policies, which recognizes the right of producers (and their customs) and management of natural resources.
Quaker United Nations Office	P10A	In order to effectively discuss matters related to food security and to coordinate global food security responses, the CFS must understand the global policy context within which hunger takes place. One of the four pillars of food security as defined by FAO is access and global economic relations set the context for access to food. Trade and investment rules and how we govern these systems has direct implications for food security because it sets the market conditions within which people access food. The rules and governance of them also has implications for what is grown and by whom.
Lagos State university	P11A	Poor data and policy strategy.
Geoff Tansey	P12A	We need major paradigm shifts to move to fair and sustainable food systems for thriving people
Active Remedy Ltd	P13A	Securing the fresh water cycle through protecting and restoring the environments it depends upon
ICRA	P14A	Impact of the increase in military events policies on food security and nutrition in Central African Republic

IAMMA	P15A	Issues of food security @ country level Plan
IAMMA	P15B	Issues of food security @ country level Plan
IFA	P17A	Micronutrient undernutrition affects 2 billion people worldwide and 165 million stunted children.
World Society for the Protection of Animals	P18A	Sustainable livestock production plays a central role in food security by providing food, employment, income and a social safety net. A key issue emerging in this area is animal health and welfare, which can function as catalyst for a broad range of social and environmental benefits.
The NCD Alliance	P19A	The relationship between the growing prevalence of unhealthy diets, obesity, and nutrition- and diet-related non-communicable diseases (NCDs).
WORLD CANCER RESEARCH FUND INTERNATIONAL	P20A	The growing prevalence of unhealthy diets, obesity & nutrition- & diet-related noncommunicable diseases (NCDs)
Compassion in World Farming	P21A	The practice of feeding human-edible crops to animals reduces overall food availability.
Anna Herforth	P22A	Monitoring of access to adequate nutritious food
APDRA Pisciculture Paysanne	P23A	Unlike traditional fisheries, the net contribution of fish farming to increase the availablty of fish and food security is not recognized.
APDRA Pisciculture Paysanne	P23B	The supply of animal protein for rural populations of plantation economies of the West African areas is problematic
University of Waterloo	P24A	Financialization of food and natural resources
Farming First	P25A	Building capacity and improving local access
Oxfam-Solidarity	P26A	Ensuring sufficient decent Rural Employment by 2025
ETC	P27A	The United Nations system must work more effectively together. Incorporate the rights angle taken by the UN Special Rapporteur on the right to food
ACF International	P28A	What are the necessary conditions to enable agricultural development to be conducive to food and nutrition security?
GISA	P29A	Analyze the role of women and reports social gender in food systems and their role in food security and nutrition.
GISA	P29B	What are the conditions for agricultural development to become suitable for food and nutrition security?
GISA	P29C	The very low financial inclusion of rural populations is a major obstacle for food and nutrition security.
GISA	P29D	Role and impact of animal diseases in food and nutrition security
GISA	P29E	Interactions between food and market offers: what is the role for public policy?
GISA	P29F	How to face the challenge of employment of rural populations to ensure their food security?
GISA	P29G	Governance of food and nutrition security by local authorities and urban areas
GISA	P29H	Role of the agro-food sector in food and nutrition security (SAN)
GISA	P29I	What are the policy tools to increase household resilience to food insecurity issues? (analysis of food security stocks in particular)
GISA	P29J	Analysis of the positive and negative impacts on food security and nutrition (food prices, security and income diversification ...) of Livestock Development, studying the diversity of contexts

		and production systems, in order to identify areas improvement.
GISA	P29K	What agricultural models can meet the dual challenge of food security and climate change?