

SUSTAINABLE DIETS AND BIODIVERSITY

DIRECTIONS AND SOLUTIONS
FOR POLICY, RESEARCH AND ACTION



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PREFACE

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The book presents the current state of thought on the common path of sustainable diets and biodiversity. The articles contained herein were presented at the International Scientific Symposium “Biodiversity and Sustainable Diets: United Against Hunger” organized jointly by FAO and Bioversity International, held at FAO, in Rome, from 3 to 5 November 2010. The Symposium was part of the official World Food Day/Week programme, and included one of the many activities in celebration of International Year of Biodiversity, 2010. The Symposium addressed the linkages among agriculture, biodiversity, nutrition, food production, food consumption and the environment.

The Symposium served as a platform for reaching a consensus definition of “sustainable diets” and to further develop this concept with food and nutrition security, and the realization of the Millennium Development Goals, as objectives.

In the early 1980s, the notion of “sustainable diets” was proposed, with dietary recommendations which would result in healthier environments as well as healthier consumers. But with the over-riding goal of feeding a hungry world, little attention was paid to the sustainability of agro-ecological zones, the sustainable diets’ concept was neglected for many years.

Regardless of the many successes of agriculture during the last three decades, it is clear that food systems, and diets, are not sustainable. FAO data show that one billion people suffer from hunger, while even more people are overweight or obese. In both groups, there is a high prevalence of micronutrient malnutrition. In spite of many efforts, the nutrition problems of the world are escalating. Improving nutrition through better balanced nutritious diets can also reduce the ecological impact of

dietary choices. Therefore, a shift to more sustainable diets would trigger upstream effects on the food production (e.g. diversification), processing chain and food consumption.

With growing academic recognition of environmental degradation and loss of biodiversity, as well as a dramatically increasing body of evidence of the unsustainable nature of agriculture as it is currently practiced in many parts of the world, renewed attention has been directed to sustainability in all its forms, including diets. Therefore, the international community acknowledged that a definition, and a set of guiding principles for sustainable diets, was urgently needed to address food and nutrition security as well as sustainability along the whole food chain

A working group was convened as part of the Symposium and a definition was debated, built upon previous efforts of governments (e.g., the Sustainability Commission of the UK), UN agencies (FAO/Bioversity Technical Workshop and Biodiversity and Sustainable Diets), and others. The definition was presented in a plenary session of the Symposium and accepted by the participants, as follows: *Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.*

The agreed definition acknowledged the interdependencies of food production and consumption with food requirements and nutrient recommendations, and at the same time, reaffirmed the notion that the health of humans cannot be isolated from the health of ecosystems.

To address also the food and nutrition needs of a richer and more urbanized growing world population, while preserving natural and productive resources, food systems have to undergo radical transformations towards more efficiency in the use of resources, and more efficiency and equity in the consumption of food and towards sustainable diets. Sustainable diets can address the consumption of foods with lower water and carbon footprints, promote the use of food biodiversity, including traditional and local foods, with their many nutritionally rich species and varieties. The sustainable diets' approach will contribute in the capturing efficiencies through the ecosystem approach throughout the food chain. Sustainable diets can also contribute to the transition to nutrition-sensitive and climate-smart agriculture and nutrition-driven food systems.

A close involvement of civil society and the private sector is needed to engage directly all stakeholders in the fields of agriculture, nutrition, health, environment, education, culture and trade, along with consumers.

The Symposium served to position sustainable diets, nutrition and biodiversity as central to sustainable development. The Proceedings of the Symposium, presented in this publication, provide examples of sustainable diets, which minimize environmental degradation and biodiversity loss. Various case studies and practices are also presented bringing biodiversity to the plate, with data showing improvements in nutrient intakes through food biodiversity, as a counterbalance to the trend of diets low in diversity but high in energy which contribute to the escalating problems of obesity and chronic diseases. The Mediterranean Diet was showcased as a useful model.

The contents of this book provide an array of new

directions and solutions for policy, research and action on sustainable diets, and useful contributions to the follow-up for the Rio+20 United Nations Conference on Sustainable Development, and its outcome document, *The Future We Want*.

Although the evidence base must be improved, existing knowledge warrants immediate action to promote sustainable diets and food biodiversity in nutrition-driven agriculture policies and programmes, as contributions to the achievement of food and nutrition security, the Millennium Development Goals, and post-2015 development agenda.

The contributions of all session chairpersons, rapporteurs, speakers and everyone who participated in the discussions and working groups were a vital part of the Symposium's successful outcomes. This book represents a significant international achievement.



Acknowledgements

The Symposium was organized by FAO and Bioversity International. The organizers are grateful for the collaboration of the CBD Secretariat, Ministry of Agriculture and Food and Forestry Policies of Italy, INRAN, CIHEAM-Bari, INFOODS, Alliance Against Hunger and Malnutrition, IUNS, and FENS. The Barilla Center for Food & Nutrition, IDRC and CTA are acknowledged for their contribution to this gathering of experts from many parts of the world to discuss with us these challenging emerging issues.

Overall leadership was provided by Barbara Burlingame, Principal Officer of the Nutrition and Consumer Protection Division of FAO. The technical and organizational support from Sandro Dernini, in collaboration with Ruth Charrondiere, Florence Egal, Stefano Mondovi and Barbara Stadlmayr and the very valuable administrative and logistical support from Giuseppina Di Felice and Nathalie Lambert, FAO staff, and Nadia Bergamini, Bioversity International staff, are acknowledged.

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Acronyms and abbreviations

AFROFOODS	INFOODS African Network of Food Data Systems
BCNF	Barilla Center for Food and Nutrition
BIOVERSITY	Bioversity International
CBD	Convention on Biological Diversity
CNR	National Research Council, Italy
CTA	Technical Centre for Agricultural and Rural Cooperation
CIBFN	Cross-cutting Initiative on Biodiversity for Food and Nutrition
CIISCAM	International Inter-university Centre for Mediterranean Food-Culture Studies, Italy
CIHEAM-Bari	International Centre for Advanced Mediterranean Agronomic Studies, Bari, Italy
CINE	Centre for Indigenous Peoples' Nutrition and Environment, Canada
CODEX	Codex Alimentarius Commission
ENEA	National Agency for New Technologies, Energy and Sustainable Economic Development, Italy
FAO	Food and Agriculture Organization of the United Nations
FENS	Federation of European Nutrition Societies
ICRAF	International Center for Research in Agroforestry, Kenya
IDRC	International Development Research Centre, Canada
INFOODS	International Network of Food Data Systems
INRA	National Institute for Agricultural Research
INRAN	National Research Institute for Food and Nutrition, Italy
IUNS	International Union of Nutritional Sciences
MDGs	Millennium Development Goals
MiPAAF	Ministry of Agriculture, Food and Forestry Policy, Italy
NGOs	Non-governmental organizations
RUTF	Ready-to-use therapeutic food



OPENING ADDRESSES

Changchui He

Deputy Director-General FAO, Rome

3 November 2010

As you are aware the theme for this year's World Food Day is "United Against Hunger". This theme underscores the fact that achieving food security is not the responsibility of one single party; it is the responsibility of all of us. The 2010 celebration also marks the 30th World Food Day, a celebration that has been observed around the world over the last three decades. The latest hunger figures show that 925 million people live in chronic hunger. While there is a welcome decline from the 2009 level, the number of hungry people remains unacceptably high. Furthermore, this number does not reflect all the dimensions of malnutrition. Micronutrient deficiencies, for instance, affect an estimated two billion people. Responding properly to the hunger and malnutrition problems requires urgent, resolute and concerted actions. It calls for united efforts by all relevant actors and at all levels.

Already, close to two million people around the globe have signed the "Against Hunger" petition, as part of an international advocacy and awareness campaign launched by FAO ("1BillionHungry.org"). It aims at placing pressure on political leaders and mobilizing all parties to take united action against hunger and malnutrition. As we are aiming to have as many signatures as possible by 29 November, when the petition will be presented to member countries on the occasion of the 140th session of the FAO Council, I am inviting all of you, if you have not yet done so, to sign the petition on the tables placed outside the room.

Coming back to this year's International Scientific Symposium, the theme for the symposium is "Biodiversity and Sustainable Diets: United Against Hunger", jointly organized by FAO and Bioversity International as a contribution to the 2010 International Year of Biodiversity.

For the first time, the concept of "biodiversity" is

linked with the emerging issue of "sustainable diets" in exploring solutions for the problems of malnutrition in its various forms, while addressing the loss of biodiversity and the erosion of indigenous and traditional food cultures. Our purpose is to promote the development of new sustainable food production and consumption models.

There is currently no universally agreed definition of a "sustainable diet". However, a definition is needed to develop policy, research and programme activities for the promotion of sustainable food systems that minimize environmental degradation and biodiversity losses. There is growing academic recognition of the complexity of defining sustainability, as well as an increasing body of evidence showing the unsustainable nature of current food systems. A definition of sustainable diets shall therefore address sustainability of the whole food supply chain and thus provide guidance on promoting and applying the concept in different agro-ecological zones.

The alarming pace of food biodiversity loss and ecosystem degradation, and their impact on poverty and health makes a compelling case for re-examining food-agricultural systems and diets.

FAO has been working with member countries, international and regional partners for the past few years to determine the status and trends of plant genetic resources that feed the world. We looked into the key achievements as well as the major gaps and needs that require urgent attention. This effort has culminated in the publication of the Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture that was launched by the Director-General of FAO last week. The Report provides a wealth of information from over 100 countries for improving conservation and sustain-

able use of plant diversity to meet the key challenges of malnutrition, food insecurity and rapid climate change. It points out that plant diversity can be lost in a short lapse of time in the face of rapid climate change, population pressure and environmental degradation.

There is an urgent need to collect, document and better use this diversity including crop wild relatives, not least because they hold the genetic secrets that enable them to resist heat, drought, floods and pests. New and better-adapted crops derived from genetic diversity can offer more nutritious and healthier foods for rural and urban consumers, and provide opportunities to generate income and contribute to sustainable rural development. Now more than ever, there is a greater need to strengthen linkages among institutions dealing with plant diversity and food security, and with other stakeholders, at global, regional, national, and local levels. Far greater efforts are required to counteract the effects of long-standing underinvestment in agriculture, rural development and food security.

The Declaration of the World Summit on Food Security held at FAO in 2009, stressed the urgent need and concrete actions to promote “new investment to increase sustainable agricultural production and productivity, support increased production and productivity of agriculture”, and for the implementation of “sustainable practices, improved resource use, protection of the environment, conservation of the natural resource base and enhanced use of ecosystem services”. In this Declaration it is also stated that FAO “will actively encourage the consumption of foods, particularly those available locally, that contribute to diversified and balanced diets, as the best means of addressing micronutrient deficiencies and other forms of malnutrition, especially among vulnerable groups”.

Agricultural biodiversity should play a stronger key role in the transition to more sustainable production systems, in increasing production efficiency, and in achieving sustainable intensification. The agriculture sector is responsible for ensuring the production, commercialization and distribution of foods that are nutritionally adequate, safe and environment friendly. Therefore, there is an urgent need to develop and promote strategies for sustainable diets, emphasizing the positive role of biodiversity in human nutrition and poverty alleviation, mainstreaming biodiversity and nutrition as a common path, promoting nutrition-sensitive development and food-based approaches to solving nutrition problems.

The importance of food-based approaches is fully recognized by FAO. Many developing countries, international agencies, non-governmental organizations (NGOs) and donors are beginning to realize that food-based strategies are viable, cost-effective, and provide long-term and sustainable solutions for improving diets and raising levels of nutrition. Narrowing the nutrition gap – the gap between what foods are grown and available and what foods are needed for better nutrition – means increasing the availability, access and actual consumption of a diverse range of foods necessary for a healthy diet. Focusing on the distinctive relationship between agriculture, food and nutrition, FAO works actively to protect, promote and improve established food-based systems as the sustainable solution to ensure food and nutrition security, combat micronutrient deficiencies, improve diets and raise levels of nutrition, and by so doing, to achieve the nutrition-related Millennium Development Goals (MDG).

Globalization, industrial agriculture, rural poverty, population pressures and urbanization have changed food production and consumption in ways

that profoundly affect ecosystems and human diets, leading to an overall simplification of diets. High-input industrial agriculture and long-distance transport increase the availability and affordability of refined carbohydrates and fats, leading to an overall simplification of diets and reliance on a limited number of energy-rich foods.

In spite of the increasing acknowledgement of the value of traditional diets, major dietary shifts are currently observed in different parts of the world, representing a breakdown in the traditional food system. This trend has coincided with escalating rates of obesity and associated chronic diseases, further exacerbated by the coexistence of micronutrient deficiencies, owing to the lack of dietary diversity in modern diets. Dietary shifts that have occurred in urban areas are currently extending to rural communities as well, where people have abandoned diets based on locally-grown crop varieties in favour of “westernized” diets.

Your deliberations should, therefore, focus the need for repositioning nutrition security, developing and strengthening food value chains and promoting public/private sector collaborations, with biodiversity and sustainability at its core. The Symposium shall also serve to explore ways in which agricultural biodiversity can contribute to improved food security and to feeding the world within a framework of enhancing agricultural efficiency and ensuring sustainability. I do hope that your collective intellectual wisdom will also offer broad perspectives on ways of changing current global thinking on how to feed the world sustainably and achieve food and nutrition security.

I am sure that the outcome of the Symposium will guide FAO and others in their work towards addressing the role of biodiversity for sustainable food

production, in light of global changes.

I once again wish to emphasize that in the current context of difficulties and challenges, it is the shared responsibility of all actors to solve the problems of hunger and degraded ecosystems, and I am convinced that united we can reach the goal of sustainable diets, now and for future generations.



OPENING ADDRESSES

Emile Frison

Director-General Bioversity International
Rome

3 November 2010

I think this Symposium was a very timely one, indeed for the first time in 2010 it would seem that the whole issue of nutrition is reaching a level of awareness in the various sectors, including among donors, not seen before. For too long now the issue of food security has focused on the quantity of food, with very little or no attention given to the quality of food. What really matters is not just filling stomachs but providing a nutritious diet that will allow the cognitive and physical development of human beings. We are aware of the alarming and unacceptable levels of hunger, but the 2 billion people that suffer from malnutrition still do not receive sufficient attention. Expanding exponentially among the world's poorest people and, more than one would believe, among the wealthiest people are cases of micronutrient deficiencies and the double burden of malnutrition with non-communicable diseases. This alarming situation is one that we must tackle together, especially when considering the rate of expansion in the poorest countries.

I am very pleased to see that, through a number of initiatives that have taken place and are taking place in different parts of the world, we are beginning to build this much needed awareness of malnutrition and its devastating impact on the peoples of developing countries. In 2008 Bioversity, together with the Convention on Biological Diversity (CBD) and FAO, launched a cross-cutting initiative on Biodiversity for Food and Nutrition and, more recently, initiatives such as Scaling Up Nutrition have really put the issue of nutrition at the top of the agenda. In New York in September this year, Scaling Up Nutrition was launched by Secretary of State Hillary Clinton and Micheál Martin, Minister for Foreign Affairs of Ireland. I think this shows a real interest up to the highest levels. We must make sure that we seize this opportunity because tomorrow there may be

some other hot topic that takes over from nutrition. It is up to all of us to take this momentum that is being built up and move it into action.

When talking about nutrition we must attempt to move beyond the predominant medicalized approach of tackling individual or single micro-nutrient deficiencies or macronutrient deficiencies, attempting to fix the problem after the problem has occurred and with very little effort to prevent the problem in the first place. In order to tackle this issue we should begin looking at malnutrition through food systems, since it is the integration of the entire food system that will provide a sustainable answer to the problems of malnutrition. This Symposium is the right forum for us to do just that.

I believe the true definition of food and nutrition security is that of bringing diverse diets, diets that fulfil all the needs of human beings, to everyone's table. This takes me to the role of agriculture, with nutrition being in the medical camp and agriculture just caring about the quantity of food produced, any links between agriculture and nutrition are weak or totally lacking. We must, as Deputy Director-General of FAO Dr He has already mentioned, prevent the simplification of agriculture to the three major staples. Currently these three major staples provide 60 percent of the calorie intake from plant origin at the global level. Such a degree of diet simplification is alarming and it is high time that we looked not only at producing quantities of food that are sufficient, but also nutrients and nutrition sufficient to fulfill all needs.

I have already mentioned the double burden of malnutrition, this is now becoming the world's number one problem in terms of public health yet it has not been tackled properly nor is it even considered a major problem by many decision-makers. It is up

to us now to make sure that this increased attention to nutrition looks at this issue in a holistic way and in a way that will prevent problems in the future.

The organization of the Symposium also coincides with the International Year of Biodiversity. The role that biodiversity can play in addressing the problems of malnutrition has been underestimated, understudied and deserves much more attention. For this reason, this particular Symposium on Biodiversity for Sustainable Diets is very important to me, it is also important that the general public is more aware of the importance of diversity and the potential of biodiversity in addressing the problems of malnutrition. In this regard Bioversity organized, in May of this year, a whole week's celebration: "La Settimana della Biodiversità" here in Rome together with the secretariat of the CBD, IFAD, FAO, the Comune di Roma and many other partners to highlight the importance and raise awareness among the broader public of biodiversity for better nutrition.

There is an urgent need to change the paradigm of agricultural production in order to integrate this dimension of nutritional quality, this requires us to move beyond the major staples and to look at the many hundreds and thousands of neglected and underutilized plant and animal species that mean the difference between an unsustainable and sustainable diet. It is not just about producing calories, but diverse diets and that is why these neglected and underutilized species are so important.

Of course this change will not be successful without collaboration and improved communication among the different sectors. The gap between the agricultural and the nutrition and health sectors must be closed. At a national level (as well as the international level) ministries of agriculture, health, education and of course, ministries of finance must

come together to set up and develop policies to address these problems in a sustainable way. There are many examples that show how we at Bioversity have started to try to practise what we preach in looking at neglected and underutilized species. One such example comes from Kenya, where we have been working with leafy green vegetables that have disappeared from the tables and markets in Nairobi. Our aim was to reintroduce these vegetables, to provide nutritious food in supermarkets and markets and to give farmers the opportunity to augment their income. In India, we have been working with the Swaminathan Foundation to look at nutritious millets (foxtail millet, finger millet and others that have various nutritious qualities) and reintroduce them in areas where they had been abandoned due to national policies promoting cassava production for starch. Through analysing the impact of these policies we were able to show that the income derived by the cassava the farmers sold was not sufficient to buy the millet they would have been producing otherwise. What is more, the farmers themselves were consuming the cassava and of course this had a negative impact on their diet. We have been working in the Andes with native cereals, quinoa and amaranth etc., in an effort to improve farming technologies and to allow the production of these nutritious foods to not only be maintained, but to develop further and also enter international markets. These examples and numerous others show that we can make a difference, the simplification of agriculture and the simplification of diets is not something that we just have to accept.

In Kenya, the major obstacle in getting those leafy vegetables onto the tables was one of image, of being considered as backward, and the common conception that this is the food of the poor. However, through communication efforts involving the Minis-

ter of Health, the chefs of the most famous restaurants of Nairobi who prepared new recipes with this leafy vegetable and by introducing it in the canteen of parliament, this food has been re-evaluated and people are taking pride again in producing, purchasing and consuming these vegetables. Today production is not sufficient to meet demand, so it is possible to make a difference.

The westernization of diets is not ineluctable; we must also tackle this problem. We have been working for a year or so in preparing for this Symposium together with FAO and many other partners, but this Symposium is not the end of the effort, it is the beginning, unless this Symposium leads to some real action we have not achieved very much. To have a book or a report on a shelf somewhere is not going to fill stomachs and certainly not to feed people better quality food, so we must take this opportunity in various initiatives, such as the Cross Cutting Initiative on Biodiversity for Food and Nutrition and Scaling Up Nutrition, to incorporate the dimension of a diverse diet and the role it can play in improving nutrition.

So this is really the start of, I hope, a major effort to ensure that all people in the world will not only have adequate food but adequate nutrition to meet their needs.

KEYNOTE
PAPER



SUSTAINABLE DIETS AND BIODIVERSITY: THE CHALLENGE FOR POLICY, EVIDENCE AND BEHAVIOUR CHANGE

Tim Lang

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It is a deep honour to address this Symposium with so many distinguished scientists; and always a pleasure for me to be back in Rome where I happily came to live after leaving school. I am a social scientist who is concerned about how policy both shapes and responds to the food system. Here, I want to ask whether policies are currently appropriate for the task of mixing sustainable diets and biodiversity. At present, the answer must be 'no'. Food and agriculture are major drivers of biodiversity loss, which is why this Symposium must help chart a better future. For me, a critical issue worthy of more attention is the definition and pursuit of sustainable diet. What is a good diet in the 21st century? Nutrition science tried throughout the 20th century to clarify what is a good diet for human health. But today it has little or nothing to say so far about how to marry human and eco-systems health.

Here lies a major 21st century food policy challenge. Do I eat ever more meat and/or dairy (an indicator of rising income)? Or do I consume a diet primarily of plants? If I want to eat meat and dairy, what is the right amount, measured against what indicators? And is this the same everywhere? Does embedded water in food make a difference to an acceptable diet? How do I eat nutritionally well while keeping greenhouse gas emissions and embedded water low? And what about fish? Much nutrition science highlights its benefits, yet environmental analysts are concerned about stocks under threat.

These and many other problems lead me to call for a big international effort to define and clarify a 'sustainable diet'. We cannot ignore this challenge. In an ideal world, I'd like to see the creation of something like an Intergovernmental Panel or Special Taskforce on Sustainable Diets. We could also create expert working parties or Commissions. Or ask some representative governments to take a lead. There are many illustrations of processes by which we could begin this process: the IAASTD [IAASTD, 2008], the WHO's Commission on Social Determinants of

Health [WHO, 2008], an International Conference such as the 1992 International Conference on Nutrition [FAO/WHO, 1992], or the 1992 Rio Conference [UNCED,1992], a committee of experts; or regional rather than global bodies.

Whichever policy process finally receives backing, the quality of humanity's collective response to the sustainable diet challenge must be raised. And this must begin soon. At present, policy on this issue is a mixture of drifting and fragmenting. Yet if we do not create a policy process to resolve the problem of defining and articulating sustainable diets, there is a real danger that humanity will drift into irreparable damage due to how and what we eat, as incomes rise. The evidence is already too strong about threats to environment [UNEP, 2009], health [WHO, 2004], and social justice [De Schutter, 2011]. We have to resolve this impasse.

To make matters even more complicated, the challenge of defining sustainable diet is not just a matter of blending two scientific discourses – public health and environment. Food is also a cultural and economic matter. Part of the 20th century's legacy is that it allowed us, in the name of progress, choice and individual rights, to develop an approach to food policy which saw no limits. Old cultural 'rules', sometimes religious, sometimes born from experience, have been weakened by consumerism, enticed by heavily funded marketing. 'Eat this brand not that.' 'Eat what and when you like'. 'Eat high status foods every day all day.' Thus the mismatch of human and environmental health is mediated by economics and culture. There is a push and a pull to this situation; people choose but do not want to accept the longer-term consequences. That is why many people working in this area now see the challenge of sustainable diets as requiring cultural signposts too.

As a Commissioner on the UK government's Sustainable Development Commission (2006-11), I have tried to help my country face this pressing task. In a series of reports, we argued that not only was the

issue of sustainable diets our problem in the developed world, but that to include food's environmental footprint in shaping future food supply would help us lead by example, and to 'put our house in order' before lecturing others or leading them to repeat our mistakes. Diet-related ill-health already places a massive burden on the UK's healthcare system. The SDC's sustainable diet study suggested that human and eco-systems goals broadly match [Sustainable Development Commission, 2009]. It would be better for UK public health and environment if its citizens ate less much overall (too many people are overweight and obese), less meat and dairy (the burden of non-communicable diseases is high and costly); more fruit and vegetables (which are protective for health). These would also have environmental benefits. While this policy argument has been generally accepted, we know that this now needs to be translated into more specific guidance. Other countries in the European Union have thought likewise : Sweden [National Food Administration, 2008], Netherlands [Health Council of the Netherlands, 2011], Germany [German Council for Sustainable Development, 2008]. In Australia, too, scientific advisors have been tussling with similar problems reviewing their dietary guidelines. Unfortunately, while the evidence that policy needs to address the conundrum of sustainable diets, there are pressures not to face up to the issue. Alas, my own country's Government closed an Integrated Advice for Consumers programme created to try to resolve the problem of welding health, environment, and social justice in food advice to consumers [Food Standards Agency, 2010], and Sweden's advice to environmentally conscious consumers has also been withdrawn after encountering difficulties over whether promoting local foods contravenes EU free movement of goods principles [Dahlbacka and Spencer, 2010]. I report this not to dismiss these fates as 'politics'. Food policy is inevitably highly sensitive. It always was and probably always will be. But everywhere in the world, interest in the issue of sustainable diets

is actually growing. The stakes may be high, but that does not mean we must ignore the issue.

What exactly is meant by the term Sustainable Diets? Part of the need to create a proper policy and scientific process is to define it. The word 'sustainability' can be plastic, made to fit many meanings. Mostly, when it is used, it is within the terms laid out in the 1987 Brundtland report [Brundtland, 1987], which proposed that human development requires us to give equal weight to the environment, society and economy. This triple focus is not precise enough, I believe. Some argue that we don't even need to define 'sustainable', but merely need to help consumers 'do the right thing'. That was the German and Swedish approach. They appealed to consumers' honour, implying that they were broadly on the right track but needed to have help fine-tuning their choices. The Centre for Food Policy where I work has taken a different direction. We have argued that alongside Brundtland's three factors, the future of food also requires policy attention on quality, health and governance [Lang, 2010]. In my last report as UK Sustainable Development Commissioner, colleagues and I outlined how this new six-headed approach to sustainable food helps include factors which actors throughout the food system know to be important [Sustainable Development Commission, 2011]. Under each of these major headings, more specific issues can be grouped. Biodiversity comes under environment, of course.

But the argument for this new six-headed approach to sustainable food and diets is that this should not become a game of 'trade-offs'. As we know over the last thirty years, too often sustainable development has traded off environmental protection for economic development. The value of 'sustainability' is that it gives equal weight to all, not primacy to one focus. We need some rigour from the word sustainable. It must encourage policy-makers to try to deliver a food system which is finely tuned, detailed and accurate

about evidence. In the case of the environment, that means not just biodiversity measures, or carbon, but other equally pressing issues such as: water, soil, land use,

And one of the reasons we have argued that health deserves to be one of the new big six headings for sustainable food systems is that health has so easily been lost. Usually it is subsumed within the social. But in food policy, this is not helpful. What is food if not about health for survival? Health is more than safety or minimum requirements; it is also about optimising nutrition, addressing not just dietary deficiencies but dietary excess. 21st century public health now requires a vision for food systems and for food culture which realises the consequences of under-, mal- and over-consumption.

To define sustainable diets thus becomes a key element in recharting the food system for the 21st century. We cannot eat like modern Europeans or North Americans. There are not enough planets. We cannot just pursue increased production at all costs. 21st century food policy needs to face the 'elephant in the room' of consumerism: eating without accepting or paying for the consequences. That is why we need to be wary of trade-offs. Ideal it may be, but the definition of a sustainable diet inevitably shows that all six headings of the new approach need to be addressed: quality, environment, social, health, economic and governance. If specialists or interest groups concerned about one heading do not also take account of the other five, distortions emerge. For example, if the pursuit of cheaper food (a goal actually heavily dependent on fossil fuels) continues to shape rich world food systems, there is an implication that consumers have the right to cheap food. The reality is that the environment is paying. Food economics needs to be brought into line with biodiversity and public health, not continue to distort them.

I see this Symposium as an important step in the

process of putting clarity onto the notion of sustainable diets. This meeting and our task of definition is not sudden. It builds directly on work done here in the FAO, such as in the landmark report on the impact of rising animal production, *Livestock's Long Shadow* [FAO, 2006]. It continues in the tradition begun at UNCED / Rio in 1992. We need to dare to do for sustainable diets what has been done for food rights with the landmark 2004 *Voluntary Guidelines* [FAO, 2004; FAO, 2008] and the work of the Special Rapporteur on the Right to Food. That line of assessing food systems and dietary inequality stems from the 1948 Universal Declaration of Human Rights, but really was shaped in the last twenty years, and given weight by the Millennium Development Goals [Lang *et al.*, 2009]. We in this Symposium need to commit to similar diplomatic effort. We too need to aspire to some Guidelines on Sustainable Diet. It took decades to get population-based dietary guidelines shaped by health at national and international levels, but we cannot wait for such slow progress for sustainable diet guidelines, if the environmental and other indicators about diet's impact on the planet are accurate. We urgently need movement.

I do not need to remind a Symposium called by biodiversity experts that modern diets and food production methods are part of the problem of shrinking genetic diversity. 17,291 species out of 47,677 so far assessed are threatened with extinction [IUCN, 2010]. But we must not allow ourselves to be mesmerised by a competition as to which heading's figures are worse (or best). The only shocking truth is that a world of plenty has been made which is in danger of undermining itself on a number of fronts, not just one. We meet here in Europe, which prides itself on being civilised, yet Europe's agri-food chain contributes an estimated 18-20% of greenhouse gases and 30% of a consumer's emissions [Tukker *et al.*, 2006]. In the UK, food represents an estimated 23% of a consumer's ecological footprint. We eat as though there are two

planets! [WWF-UK, 2010] How we eat is altering the web of life, how everything connects, what Charles Darwin called the 'entangled bank' of life [Darwin, 1859].

So, what are the policy goals that ought to shape the food system for the future? Is it to eat what keeps a body optimally healthy? Or to eat what we like? Or to eat within environmental limits? Or to eat according to our income and social status? These are scientific, practical and moral questions. I repeat: my view is that we need to reshape culture around the complexity of meeting multiple goals of quality, environment, health, social, economic and governance. A good food system will strive for improvement across all these, not enter a ruinous competition as to which has the loudest policy voice.

This policy position places responsibilities on scientists too. We / they cannot stay in the comfort zones. Bridges across the disciplines need to be built. Common discourses and research must be created. Policy-makers frequently complain that they cannot get coherence from experts. That may be an excuse for inaction, of course, but there is some truth, too. Too often, experts contribute to what we call 'policy cacophony', many voices all claiming they represent the key issue [Lang and Rayner, 2007]. In this context, I want to pay respects to pioneering work by some NGOs trying to grapple with this problem. WWF, the conservation organisation has been particularly ambitious in articulating its One Planet Diet programme [WWF-UK, 2009]. Also the Food and Climate Research Network [Audsley *et al.*, 2010]. Some corporations, too, are looking ahead and are troubled by what they rightly see as threats to their long-term profitability and sustainability (in the financial sense of the word). Remarkable commitments are being made: to reduce carbon or water [Unilever, 2010]. Sceptics might see this as protecting brands and financial viability. Perhaps, but I think not entirely. Slowly, inexorably, some consensus might be emerging, from different quarters [[Barilla Centre for Food

and Nutrition, 2010]. Everything points to the inevitability of defining sustainable diets and articulating the cultural and policy pathways by which to deliver them.

Discussions I have held with food companies suggest that many are content to address what they see as the environmental challenge of their products through 'choice-editing'. This term is used to mean that they, the companies, shave away the footprint without telling the consumer too much. The change is 'below the parapet' as we say in English. It doesn't confront the consumer with too much radical change. This is interesting and important, not least since it questions how deep the commitment to consumer sovereignty really is. If consumers are not demanding such change, why is it being introduced? Let me be clear. This is a good thing, but it does mean that already the discourse about sustainability and sustainable diets is no longer in the rigid ideological terrain of consumer choice. Changes are being introduced without consumer choice. Indeed, they are restructuring what is meant by choice. These are cautious and hopeful shifts in policy thinking, in advance of most politicians. But I am not alone, as a policy observer, in my concerns about whether there is sufficient urgency. The integration is not there for the whole food system; nor is the required scale and pace of change. No-one is yet leading efforts to change culture rapidly.

If we want consumers to act as food citizens, surely they need help in the form of new, overt 'cultural rules', by which I means guidelines on the 21st century norms of eating. We have quite a range of means by which to do this, from 'hard' such as fiscal and legal measures, to 'soft' ones such as education and labelling. I doubt any system of labelling could capture sustainable dietary advice. Labels have not stopped the nutrition transition. The introduction and design of labels themselves tends to become a battleground, when they ought

to be policy means rather than ends.

In conclusion, I believe that the case for the better definition of sustainable diets is overwhelming. There is already sufficient evidence as to food's impact to warrant the creation of comprehensive sustainable dietary guidelines at national, regional and global policy levels. I listed earlier some policy processes which might deliver these: panels, commissions, etc. But we also need to recognise that definitions and guidelines do not engender change on their own. They are means, not ends. External as well as professional pressure to change is essential. It gives policy-makers both support and space to come up with solutions. Pressure to change food systems and policy direction is long overdue. Production focus is no longer a sound or adequate goal for food policy. We need a hard, cold look at the fault-lines and power relations in current policy-making: why some interests triumph. Food raises fundamental questions about humanity's relationship to the planet: is it exploitative or facilitative, democratic or sectional? On the Masters Programme in Food Policy at my University, we frequently give our students an exercise: you have five minutes with the President (or Prime Minister or Sovereign), what will you say? Here is my attempt for the topic we are tussling over.

Firstly, we need to define sustainable diets, urgently. We need to set up a process to do this, perhaps many processes, but these must be formalised. There will be resistance; some companies and institutions are wary, others are overtly hostile, but more are beginning to see the point. They are already engaging about sustainable production, not least since rising oil prices are pushing core costs upwards. This process can and should appeal to the common good. It is among the 21st century's greatest challenges to eat within planetary limits yet giving health, pleasure and cultural identity.

Secondly, we need to clarify where biodiversity fits into sustainable diets. Is the greatest contribution of consumers just to eat less? To eat more simply? To cut out or just down on meat and dairy? To eat the same everywhere? (I doubt it) All year round the same diet? (I doubt it.) But let's explore those questions. Thirdly, we need to ensure appropriate institutional structures. Have our countries, regions and world bodies got the appropriate policy vehicles for these discussions? Can the Convention on Biological Diversity be squared with the advice coming from Health bodies or Trade bodies? Whose processes matter most?

Fourthly, we must research which arguments and factors are most effective in delivering consumer behaviour change. If we do not do that, our fine intentions and evidence on the need to eat sustainably might fail.

Fifthly, we must fuse nutrition and environmental guidelines to generate new cultural rules, to guide everyday norms and habits. Biodiversity protection must be part of that. Nutrition education is currently sadly almost blind to biodiversity, but this need to remain so. Even the countries trying to take a lead on sustainable diets wrap the notion up in the 'soft' language and instruments of choice. They shy away from the real change agents such as fiscal impact on price or regulatory frameworks shifting the 'level playing field' on which business can work. The full range of policy instruments to frame choices isn't being applied. To be stark, the pursuit of sustainable diets is an indicator of progress. It redefines what we mean by progress.

We have much to do. We are not sure about what to do about policy on sustainable diets yet, but we have enough evidence and enough clarity about the criteria by which sustainable diets might be judged to act and to urge policy-makers to have courage to act sooner rather than later.

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