CFS Committee on World Food Security — HLPE High Level Panel of Experts

HLPE open e-consultations

E-consultation on an Issues Note proposed by the HLPE Steering Committee:

HLPE report on Nutrition and Food Systems

From 9 December 2015 to 15 February 2016

http://www.fao.org/fsnforum/cfs-hlpe/nutrition-and-food-systems

– Collection of contributions received –

These proceedings are compiled by the Global Forum on Food Security and Nutrition (FSN Forum) for the High Level Panel of Experts (HLPE)

Global Forum on Food Security and Nutrition

www.fao.org/fsnforum

Table of contents

Topic

At its 42nd session in October 2015, the CFS decided that the HLPE will prepare a report on *Nutrition and Food Systems*, expected to be presented at CFS 44 in October 2017.

To prepare this report elaboration process, the HLPE is launching an **e-consultation** to seek feedbacks, views and comments on the following Iissues' Note on Nutrition and Food Systems proposed by the HLPE Steering Committee.

To participate, please visit the dedicated HLPE e-consultation website:

http://www.fao.org/fsnforum/cfs-hlpe/nutrition-and-food-systems

Please note that in parallel to this consultation, **the HLPE is calling for expression of interests of experts for joining the Project Team as a leader and/or as a member.** The call for candidature is open until 30 January 2016; visit the HLPE website www.fao.org/cfs/cfs-hlpe for more details.

HLPE Steering Committee Issues Note on Nutrition and Food Systems

In view of the implementation of the decisions of the International Conference on Nutrition (ICN2), of the implementation of the Sustainable Development Goals (SDGs) – particularly Goals 2 and 13, and in consideration of the recognized compelling need to foster a solid scientific and technical background in support of the CFS workstream on nutrition, there is an imperative need to examine the links between nutrition and food systems.

There is a diversity of food systems and growing evidence of the health and nutrition implications of different food systems. The overarching issue in this report shall be to assess the influence of various types of food systems on diets, nutrition and health. It shall consider food chains from farm to fork and all the sustainability challenges of food systems (in the economic, social and environmental dimensions) and how they relate to nutrition. This calls for a report grounded on a multidisciplinary approach, and on a critical synthesis of the existing research and major reports, building upon multiple sources of evidence, not only academic but also experiential knowledge.

Malnutrition is a global issue. The nutrition focus shall include malnutrition in all its forms, including under nutrition, over nutrition and micro nutrient deficiencies. In addition, the report shall examine issues across the human life cycle (including esp. pregnant, lactating women, children, and elderly), including marginalized and vulnerable populations.

This is a complex issue and the report shall examine the multidimensionality of food systems and nutrition and the root causes of malnutrition. By doing so, it shall improve the capacity to follow-up

transitions and evolutions through the provision of a conceptual framework that might be used in the future.

There is a need for a multifaceted approach, including a need to understand the internal and external (e.g. socio-demographic, environmental, and global changes such as climate change) drivers of the evolution of food systems as well as the drivers of consumer's choices, given the heterogeneity of consumers. In addition to assessing what is new, the report provides an opportunity to examine what is promising – either as a continuation or revitalization of existing and long-standing food systems.

The HLPE report would address the following issues from global to regional and local levels:

- How and why do diets change?
- What are the links between diets, consumption and consumer habits and food systems?
- How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?
- What are the determinants of the changes in consumption?
- How do the dynamics of food systems drive consumption patterns?
- How to shape and to address pathways to healthy nutrition?
- What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?
- How to build on the diversity of the existing food systems?
- What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?
- What action should different stakeholders, including governments, civil society and the private sector, take?

The report shall present a concise and focused review of the evidence-base depicting the critical relationships between food systems and nutrition, elaborate on concrete solutions to ensure that food systems deliver better nutritional outcomes, in order to propose concrete actions elicited from all stakeholder groups – farmers, processors, retailers, consumers, governments and other public actors – to reduce the triple burden of malnutrition.

Contributions received

1. Olivier Receveur, Université de Montréal, Canada

Your objectives are too many. Just trying to address the first one (how and why diets change) would be monumental (but certainly worth undertaking) given the variety of food systems on the planet. I attached a recent article where we tried to understand why traditional food practices change in one single community...

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/mistissini.pdf

2. Kuruppacharil Peter, World Noni Research Foundation,Chennai, India

"There is a horticultural remedy for every nutritional malady" says Prof. M S Swaminathan Father of Green Revolution in India.Nutritional self sufficiency in a family is a priori requirement for national food and nutrition security.With limited space, water, energy and manpower a nutrition garden in the homestead-be it terrace, open space, pots-vegetables and fruits of all sorts can be grown.Pesticide residue free fruits and vegetables can be grown by members of family adding to their purchasing power by selling excess production .The paper attached speaks volumes on the concept of kitchen garden/ nutrition garden.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Nutririon%20garden%20for%20family%20farming(1).docx

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

We have watched the FAO call for experts, call for information and continue to call for research without implementation and solutions. Algae has been researched at universities for the last 70 years at a cost of $2.5 billion from US taxpayers. Algae is high in protein and can be grown in any third world country to eliminate childhood malnutrition using all off-the-shelf existing technologies.

When you organization realy wants to discuss solutions (not more research reports) using algae for food nutrition and feeds and training for third world countries to develop algae farms for food and feed, feel free to contact us at info@nationalalgaeassociation.com

4. Naveen Kalra, India

Following aspects on food production systems need to be highlighted

1. Choice of appropriate crops/cropping systems (major emphasis on fruits and vegetables components)

2. Decline in soil fertility status (specially secondary and micro-nutrients viz. S, Zn, Fe, B etc)

3. Replenishment of soil nutrients availability for higher uptake of micro-nutrients, primary and secondary nutrients by the plants for better human health and nutrition

4. Methods of enhanced bio-fortification (increased Zn, Fe, S, B, K contents in food systems) viz. develoment of customized fertilizers, foliar nutrition to crops, use of plant growth promoters, organic farming, use of bio-fertilizers and bio-pesticides

5. Development of green agricultural products

6. Control of soil, air and water pollution (viz. industrial pollutant, toxic elements etc) for direct/indirect effects on human health and nutrition and appropriate remediation for control of these pollutants

7. Evaluating the impact of tropospheric ozone, UV-B radiation and aerosols on human health and agricultural production systems

8. Effect of temperature rise and elevated carbon dioxide on agricultural production systems, products quality viz. nutrition aspects in general and human health

9. Enhanced land degradation (salinity, sodicity, acidity, waterlogging, heavy metal loadings, radio-active wastes, pesticides residues, nitrates leaching etc) and direct and indirect effects on human health and crops nutrition

10. Specific case studies on these aspects (including management options)

11. Decision support systems development, including development of simulation models, for characterization of the extent of problems, damage mechanisms and management options for better food quality and human health

and many other issues

Regards

Dr Naveen Kalra

Former Head, Agricultural Physivcs, Indian Agricultural Research Instiutute, New Delhi, India

Former Head, Center of Agri-Solutions and Technologies, Tata Chemicals Limited, Aligarh, UP, India

5. Diana Lee-Smith, Mazingira Institute, Kenya

Over-nutrition is an unfortunate term and should be replaced with something that considers different causes of obesity. In southern African urban areas among others it has been established that the urban poor are food insecure due to lack of dietary diversity and reliance on sugars and starches -- foods that are promoted throughthe corporate food industry and promte obesity. Fresh foods at a reasonable price are less available to the urban food insecure.

On the other hand it has also been shown by research that consumption of animal sourced foods (ASF) among urban dwellers promotes child health and that therefore the keeping of livestock is a practice that should be encouraged, including among urban populations which are vulnerable to food insecurity and poor health. ASF help in providing zinc to the diet which contributes to prevention of infections through better immune response. This includes dairy products such as milk and eggs, as well as meat.

6. Claudio Schuftan, PHM, Viet Nam

You say: 'The Report shall consider food chains from farm to fork and all the sustainability challenges of food systems (in the economic, social and environmental dimensions) and how they relate to nutrition'.

I cannot comprehend why the political dimension is left out.

You say: 'This calls for a report grounded on a multidisciplinary approach'.

But Attempts at acting in the context of the basic causes (you say root causes) of malnutrition departs from a flawed analysis of reality and have consequently mostly failed (and are doomed to continue to fail). Among the most prominent of these are Multidisciplinary Approaches to solve the problems of so many different human rights violations, the right to food included. There is nothing terribly wrong with this concept, but it just gratuitously assumes that looking at the problem of these violations from a 'wider' multi-professional perspective is going to automatically lead us to the better, more rational and egalitarian solutions.

The call for multidisciplinarity, for sharing paradigms amongst the different scientific disciplines where practitioners come from, falls under the same optic of my criticism all along. Just by putting together brains 'sowed' differently, without considering where they are coming from ideologically, is not going to, all of a sudden, make a significant difference in the outcome and the options chosen. They may well stay in the domain of addressing the immediate causes of malnutrition, only now everybody involved contributing a small monodisciplinary window to the package of (still pat?) solutions proposed. Multidisciplinary approaches --as opposed to a dialectical approach-- simply most often take the social and political context (i.e., the individual and institutional power relations) as given; they, therefore, end up being conservative in their recommendations.

You say: 'The report shall examine issues across the human life cycle (including esp. pregnant, lactating women, children, and elderly), including marginalized and vulnerable populations'.

Yes, in the SDGs there are many calls to pay special attention to the most disadvantaged in society and to adequately meet the needs of mothers and their children, especially the most disadvantaged. But these calls reflect the philosophical position known as 'prioritarianism' which is favored by all those critical of any type of egalitarianism --the core basis of human rights. Prioritarianism is based on a misguided humanitarian concern, i,e., to help to improve the situation of people living in extreme poverty --but without any reference to the need to reduce the appalling disparities underlying it. According to prioritarianism, it is morally most important to help people who are worse off --but not addressing the degree of inequality in the society they live in. What is important from the moral and human rights point of view is not that everyone should have the same, but that each should have enough. If everyone had enough, it would be of less moral consequence whether some had more than others.

You say: 'The Report shall improve the capacity to follow-up transitions and evolutions through the provision of a conceptual framework that might be used in the future'.

Don't we already have a time-proven framework analyzing the three levels of causality of malnutrition. Will the HLPE be adapting it or will it be working on another (of too many) alternative, but not necessarily better frameworks?

You say: 'There is a need for a multifaceted approach, including a need to understand the internal and external (e.g. socio-demographic, environmental, and global changes such as climate change) drivers'.

Again, why is the probably key political driver left out? Look at the determinants of the TNCs' agribusiness food system: How can it be countered if not politically?

Finally, you say: 'In addition to assessing what is new, the report provides an opportunity to examine what is promising – either as a continuation or revitalization of existing and long-standing food systems'.

I cannot understand why the HLPE leaves out the discontinuation option… It certainly is as important, isn't it?

7. Md.Moshfaqur Rahman, Freelance Researcher in Social Sciences, Bangladesh

Turn the flood into an option

By Md.Moshfaqur Rahman

Writer:

Md.Moshfaqur Rahman is owner & analyst of Freelance Researcher in Social Sciences-a company in Bangladesh helps to outsourced research. Support structure for investment & platform for University on applied research.

Key Words:

Flood, management, tech solution & turning to option

Abstract:

Loss of crops is very common with food & other in natural disaster. This age all we are facing this trouble; so why not use the disaster as option. I choose flood to turn it to option. Like flood supports surface recharge with support to vegetation & many. I think to coordinate it with management then it becomes valuable. There are two types of flood regular & flash flood. My test scenario will be Bangladesh then you may like to introduce with other tech solution. Also if any of your foundations & research groups wants to work my platform can help.

Manage flash flood:

April-June is the three maximum risk months for flash flood in Bangladesh. Before the April we have to complete the harvesting; otherwise the crops lost. Now what to do: make secondary support structure that helps against erosion. Mow land with bio waste-this turn to fertilizer in flood season. Also plant grass-these type need to have a research so we find better suitable grass variety. This will help the cattle as food in during period of disaster. This helps survive of cattle.

Manage regular flood:

May-July is flood months here in Bangladesh. The secondary support & other are alike flash flood management. Here have to include few more thing-medication for both cattle & human, transportation & recovery plan.

Why & How:

Most of food lost here in disaster including seeds. Relief & response are nothing but dry food. So in recovery stage these people are in half-done position. This also augments other crisis. Market access has no response here; also security & gender problem increase. This research will help social resilience & food security. This study or research will create option for tech solution: like applied remote sensing. This way any region will have resilience against disaster.

Research partnership:

I want to keep this option open for any research group from those platforms stated in TOR can join & financial matter could be easily solved. Just need to add Africa & other developing region can get resilience against disaster.

8. Anil Kumar, M S Swaminathan Research Foundation, India

How to build on genetic diversity in the traditional food baskets?

The "Genetic Diversity for Food and Nutrition" is a subject still has been overlooked in the larger agenda of food production. This leads to serious setbacks in achieving the goals 2 & 13 of SDGs. "Nutrition for All" in the era of climate change can be achieved only if there is a 'healthy' change in designing the diet bowl, especially of the poor and the vulnerable in line with their culture, traditions and dietary needs of the targeted society and in relation with the natural availability of biodiversity of food value. Thus, the purpose of any project that to be taken up to address the issue of food and nutrition must aim for understanding the multi-dimensional perspective of the food diversity available -the orphan crops, forest foods, and wild or semi-wild foods in the traditional food baskets.

Diets are changing globally in keeping with the whims and fancies of the Market. Influencing the market through adequate R & D work is required for making available food and health products from local bio-resources that can play a substantial role towards local food and nutrition security.

There is an enormous scope for identifying and analyzing a wide spectrum of wild and little known species not only for their food and nutritive value but also their curative qualities. Following are some suggestions to "shape and address pathways to healthy nutrition"

- Re-search all the known species of Food and health value (including the wild food plants) from those "Vavilovian Centres of plant diversity"; but this time through an inter-disciplinary research approach that will work in tandem with ethnobotanists, molecular biologists and phyto-chemists, food technologists;
- Screen the priority crop varieties with reference to the genetic diversity that are generally resilient to abrupt disruptions and have potential to contribute breeding for Climate Smart crop varieties;
- Establish Farm Gene Banks by promoting collection and conservation of promising plants including the known wild species of edible and medicinal value
- Analyze the nutritional and phytochemical properties of all the locally consumed varieties to identify the food, nutritional and health value of the species in use.

- Promote innovative applications based on the research results of the nutritional and phytochemical analysis as food.

When we aim for a zero hunger world by 2030, the activities mentioned above are very crucial. We should protect and enhance what we have left with in our traditionally managed food baskets, and we should employ the new science and technologies to better utilize this kind of critical biodiversity. It is high time to work together the botanists, social scientists, gender experts, anthropologists, agricultural scientists, nutrition experts and biochemists with local community men and women to know holistically the dying biodiversity components of traditional food baskets.

N. Anil Kumar/MSSRF

December 11, 2015

9. Roberto Capone, CIHEAM, Italy

On behalf of CIHEAM-Bari I would like to thank HLPE for this timely and interesting initiative.

I do believe that the topics addressed in the Issues note are relevant for better understanding the issues at play when talking about nutrition and food systems and especially the multifaceted and multidimensional relations and linkages that exist between nutrition, diets, food systems and sustainable food and nutrition security.

Nevertheless, I think that the Mediterranean diet - that is considered by many scholars as an example of sustainable diets - should be considered as a case study in the report. Better understanding what is happening in the Mediterranean area will provide insights for promoting more effectively sustainable diets in other agro-ecological zones and geographical contexts.

Moreover, I would like to suggest focusing also on tools (e.g. metrics, indicators, indices) for better assessing the nutrition-health, environmental, economic and socio-cultural sustainability of diets. The work carried out by CIHEAM-Bari and FAO – in collaboration with many other Italian, Mediterranean and international organisations – on the sustainability of the Mediterranean diets (http://www.iamb.it/share/img_new_medit_articoli/949_28dernini.pdf) can serve as an example.

Another aspect that should be better analysed in the report, according to me, is also the relation between traditional/typical diets and traditional diets in different contexts as well the impact of the evolution of that relation on local agro-biodiversity.

Once again I would like to thank for this outstanding initiative and look forward to contributing to the report.

Kind regards

10. Hamidreza Naderfard, Ministry of agriculture.deputy for livestock affairs, Iran

A-First of all ,I cordially , thank HLPE steering committee who gave all scientists and well-experienced esperts this opporyunity to write and present their useful and effecive comments in the field of :Food system and nutrition

B- I will read very accurately, patiently and sincerely , the ten above-mentioned questions as follow:

1-How and why do diets change?

...

.....

.....

10-what action should.....take?

and will mail my view points to two E.mail address of moderator and secretariat up to 30 january 2016

I hope I can give effective and practical comments.

Again. thank you

Hamidreza Naderfard

11. Susan Bragdon, Quaker United Nations Office, Switzerland

Thank you to the HPLE Steering Committee for providing this opportunity for comment.

I think it is important to explicitly explore the importance of agricultural biodiversity in health diets. A diversity of food systems is one component of agricultural biodiversity, but is not sufficient; the terms of reference for the HPLE paper should also explicitly assess the importance of agricultural biodiversity (genetic and species, not only agro-ecosystems) to healthy diets and nutrition.

We know that the predominant agricultural production practices today lead to continued genetic erosion and therefore, increased levels of genetic vulnerability of specialized crops and livestock. The move away from diversity within crops, the move away from the diversity of crops and the move away from diversified cropping systems including an integration of livestock towards simplified, mainly cereal-based systems may provide sufficient caloric intake (for some) but it has contributed to imbalanced diets. We also know that cereals cannot provide the necessary micronutrients and quality protein needed for a healthy diet. The food system as it is working today is responsible for the twin problems of obesity and hunger and both are related to dietary simplification and this in turn starts from the simplification of what we grow. The analysis needs to start there, but it is not the end point of looking through the biodiversity lens.

The note should look the relationship between the erosion of biodiversity and its impact on diets and nutrition. In particular, it should explore the driving forces – including legal, political, institutional, and economic – behind the erosion and how these can be modified or mitigated. These forces should be explored all along the chain from production to consumption because at each point availability and access to diversity can be affected by a variety of factors. We need to look at how we design a supportive economic, political, social and legal environment that ensures that diversity is kept throughout the food chain and what are the current dynamics and trajectories that either support or challenge doing so.

Finally, in looking at through this diversity lens, in understanding the importance agricultural biological diversity at all levels plays in nutrition, we need to explore what this means for public policy in ensuring rural livelihoods, reducing poverty, improving nutrition and the resilience of the food system in rural areas. It will need to move beyond the public sector as providing a buffer for risk for the private sector and explore what the nature and role of the public sector must be if we are to the biodiverse systems that are needed from food to fork to ensure healthy diets and nutrition for all.

12. Claudio Schuftan, PHM, Viet Nam

After having carefully read and commented on the preamble, I have repeatedly read the questions in the Issues Note.

Am I alone in feeling that some of the more relevant questions are not posed there --making some key issues to be missing?

Take for example (not exhaustively and not in any particular order):

The role of mono-cropping in modern resource-intensive agriculture.

Palm oil quickly replacing trans-fats -- an ecological disaster in the making.

Agro-industrial vs agro-ecological food systems.

Food security vs food sovereignty.

TNCs and vertical integration -- from seeds, to fertilizers, to pesticides, to processing (and ultra-processing!), to marketing and advertising (especially to children).

The current predominant food system and NCDs -- another disaster in the making.

Do diets and eating habits really change by choice?

Consumer habits vs consumer manipulation.

The determinants of the changes in consumer consumption are driven by ultra-processed foods being cheaper (thus the last resort option for those rendered poor) Is the dynamics of food consumption thus a form coercion?

Public policies as a pathway to healthy nutrition vs the essential role of community empowerment and mobilization for true actionable solutions in the farm to fork continuum.

Is the diversity in food systems being irreversibly lost? Why?

Ah, and, at the end, you call on stakeholder groups when you really ought to be calling on claim holders and duty bearers; this is what we must use in the UN system.

Am I very off the mark?

Claudio Schuftan, Ho Chi Minh City

13. Sazzala Jeevananda Reddy, India

How and why do diets change?

One is associated with the food production through farming systems practices in agriculture and the other is non-agriculture system – animal meet and sea food. Under traditional agriculture farmers used to produce nutrient rich food including milk. With the chemical input agriculture technology this is drastically modified and now people get poor quality polluted diet including adulterated food. Even the sea/river/pond foods are contaminated with pollution.

Cereals and pulses were important food components under traditional system. Now vegetables are consumed more but they are contaminated with polluted water use in producing them.

· What are the links between diets, consumption and consumer habits and food systems?

With urban culture, there is lot change in diet when compared to rural diet.

· How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

When people consume polluted or adulterated foods nutritional quality is affected and thus health is severely affected. Several new diseases were introduced with such food.

· What are the determinants of the changes in consumption?

Urban to rural; country to country; based on local food availability; impact of western food habits in to developed countries; journey foods; hotel foods, etc

· How do the dynamics of food systems drive consumption patterns?

· How to shape and to address pathways to healthy nutrition?

There is only one way changing the agriculture system from chemical inputs technology to organic input technology; controlling of water pollution; controlling of adulterated foods;

· What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

Public policy under corrupt governance and MNC controlling such governance we rarely achieve healthy, nutritious and culturally appropriate food. Food for all is produced but we are wasting such food 30 to 50% of what is produced due to poor governance.

· How to build on the diversity of the existing food systems?

With good governance

· What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

Organic forming

· What action should different stakeholders, including governments, civil society and the private sector, take?

At present the system is in the hands of MNCs and governments are run by the MNCs and even noble prize winners are canvassing for MNCs cause.

Dr. S. Jeevananda Reddy

14. Claudio Schuftan, PHM, Viet Nam

I had done this review for a very related document.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Tow%20assing%20nut%20impact%20of%20food%20systs%20pols_0draft%20Schuf%20suggs.docx

Cordially,

Claudio in Ho Chi Minh City

15. Purushottam, P. MAINALI, United States of America

How and why do diets change?

Basically the Change in diet is very much related to the purchasing capacity and the knowledge on Nutrition in the community. Improved economic condition has led to increased consumption of Nutrient rich diet like; milk, meat, fish, eggs, vegetables and the fruits, especially in the developing countries.

Developing/changing lifestyle of the people i.e family members working more out of the home, out of the community has created demand and has developed the dependency on fast food items.

Increasing trend of metabolic diseases like; obesity, hyperglycemia, heart disease, high blood pressure, have also forced to change the dietary habit.

Organic and high fiber contained diets' demand is in increasing trend.

What are the links between diets, consumption and consumer habits and food systems?

Tradition of the community has strong links, e.g. South East Asian community prefers the rice based diet, whereas westerners go with meat and bread based one. Increasing Asian population in Europe and in United States has led to increased supply chain of Indian and Chinese food items.

Within the countries, Urbanization has also impacted on changing consumer's habit and the food system.

How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

Changes is food system has occurred due to the changes in economy which has led to increased consumption of nutrition rich diet such as milk, meat, fish, eggs and vegetables. Other changes are due to the changing lifestyle of the population, which has forced to increased consumption of packed food.

What are the determinants of the changes in consumption?

Economy, food availability, knowledge in nutrition and the changes in lifestyle are the determinants of the changes in the consumption.

How do the dynamics of food systems drive consumption patterns?

As food systems are evolved as per the changed circumstances/lifestyle, certainly there is positive correlation between them.

How to shape and to address pathways to healthy nutrition?

Enhancing Knowledge on nutritional diet with due consideration on traditional food and the food habit. Developing Nutrition Strategy as per the situation/location.

What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

Certainly Country specific Public Policy will guide the strategic interventions in promoting healthy, nutritious and culturally appropriate diet for all.

How to build on the diversity of the existing food systems?

Imparting Knowledge about nutrition rich food and strategic intervention on food commodities in value chain approach.

What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

(i) Develop country specific Agriculture based Food and Nutrition Strategy.

(ii) Ensure Technical support and investment in increasing production and productivity of Nutrition rich crops and livestock.

(iii) Ensure quality regulation.

(iv) Consider resettlement of those poor, rural and scatted households in suitable places.

(v) Help ensuring income generating opportunities to the low income group/ population.

What action should different stakeholders, including governments, civil society and the private sector, take?

They will have specialized role and responsibilities, which could vary countries to countries. Their role responsibilities could best be identified and established in Country specific Food and Nutrition Strategy.

Dr.Purushottam P.Mainali

16. Justin Eyaan Ndoutoume

Bonjour,

C'est un plaisir, et même un impératif pour moi de transmettre les enseignements que j'ai reçus, et contribuer à mon niveau à la recherche de l'Adéquation Nutrition-Sécurité alimentaire/Gestion durable du Patrimoine environnemental.

La Bible dit à ce sujet "Celui donc qui sait faire ce qui est bien et qui ne le fait pas commet un péché"...

Dès la fin de la Cop 21, je vous ferrai d'abord parvenir un draft résumant les pistes que j'explore en ce moment.

J'aurais pu vous faire parvenir quelques publications depuis votre premier appel à contribution. Mais Une erreur médicale a fortement réduit ma vision.

J'attends une pension pour ce handicap pour m'entourer d'une équipe minimale.

Pour l'heure, je rédige mes idées sous forme d'une "Note d'intention" en vue de la production de films audiovisuels didactiques pour la divulgation de systèmes et l'adaptation des exploitants et des populations.

Je m'efforce de vous envoyer (au moins une bonne partie de) cette note avant le 31 janvier 2016,

Dieu voulant.

Best regards

17. Md.Moshfaqur Rahman, Freelance Researcher in Social Sciences, Bangladesh

Sir;

My concept

Loss of crops is very common with food & other in natural disaster. This age all we are facing this trouble; so why not use the disaster as option. I choose flood to turn it to option. Like flood supports surface recharge with support to vegetation & many. I think to coordinate it with management then it becomes valuable. There are two types of flood regular & flash flood. My test scenario will be Bangladesh then you may like to introduce with other tech solution. Also if any of your foundations & research groups wants to work my platform can help.

Regards.

18. Abdul R. Ayazi, Agriculture Attaché, Afghanistan Embassy, Rome

Before commenting on the ten points included in the e-consultation on the forthcoming HLPE study, we wish to draw attention to one important aspect. This is to do with consistency in findings and recommendations between the forthcoming HLPE Report on Nutrition and Food System (to be presented to CFS 44 in October, 2017) and the completed HLPE Report on Sustainable Agricultural Development and Food Security and Nutrition, including the Role of Livestock (to be presented to CFS 43 in October, 2016). The HLPE Steering Committee must ensure that the two reports do not give

conflicting signals with respect to future actions on nutrition, because both reports are intended to address the same problem, namely how to approach the triple burden of malnutrition?

The subject under consideration is demanding because the relationship between crop diversity, dietary differences, nutrition and health is a complex subject and there is no unanimity of views on the subject. However, there is convergence on two points (i) that poverty eradication has central role in reducing undernutrition and (ii) that sustainable development in all sectors and nutrition are intrinsically intertwined.

Responses to the ten points raised in the e-consultation should provide a good feedback to the team preparing the HLPE report on Nutrition and Food Systems. However, among the ten points listed we wish to emphasize the importance of the last six points which are intended to:

i. highlight that "hidden hunger" of enough calories but insufficient vitamins and minerals is now of global concern;

ii. explain the diversity in food systems and their impact on nutrition;

iii. clarify the nexus between food systems, consumption patterns and healthy diets;

iv. show that there is a range of public policies and actions addressing location-specific malnutrition; and

v. demonstrate that success depends on the strength of partnership among all actors, from grassroots organizations to parliamentarians and high level policy makers and administrators.

We wish to see that the HLPE Report give special attention to the following points.

1. Not to burden the report with too many facts because other reports do provide adequate coverage, especially the IFPRI Global Report on Nutrition 2015. The IFPRI report also highlights ten actions by all stakeholders to put an end to malnutrition by 2030. The HLPE report should take these actions into consideration when making its own proposals;
2. While the report must provide space for the main drivers of the transition in food consumption and nutrition (population, urbanization, income growth, consumer attitude, trade and the status of market development, the increasing role played by multinational corporations and the retailing of food commodities), it is important for the report to demonstrate that each driver has its own peculiar influence in shaping nutrition;
3. Stress, in particular, that resilience is the core of all food systems;
4. Highlight the negative impact on diet resulting from the erosion of biodiversity;
5. To a greater extent, track actions that can amend malnutrition in all its forms and for all groups of the population, especially the vulnerable groups (women, children, indigenous population);
6. Highlight the advantages of integrating nutrition into agricultural and food security planning and programming , including the tools required;
7. Where appropriate, provide brief examples of evidence-based success stories as well as cases of failure;
8. Put major stress on locally tailored capacity development that could address structural problems that are causing or exacerbating malnutrition;

9. Underscore the contribution of neglected and underutilized crop species (NUS) to better nutrition, especially pulses which are 25% protein, more than double that of cereals;
10. Stress the danger of transition from traditional to "western style" diet with its high content of fats, salt, sugar and processed foods, increasing the incidence of non-communicable diseases, like diabetes, heart diseases, certain types of cancer and obesity;
11. Make room in the report for the land requirements of different food systems for a healthy diet. This should be part of the planning process;
12. Bring forth science-based evidence to demonstrate that high levels of CO2 can significantly reduce the level of essential nutrients as well as cutting protein levels;
13. Highlight that climate change can adversely affect nutrition in two major ways (i) through floods and droughts associated with the rise in global temperature and (ii) increased incidence of diseases resulting from climate change, like malaria which reduces body's absorption and utilization of essential nutrients;
14. Stress that private business, national and multinational, can play an important role in improving nutrition. In this connection, the six messages for business mentioned in IFPRI's Global Nutrition Report 2015 could be considered.

We wish full success to the Team responsible for the completion of the HLPE study.

19. Massimo Iannetta, ENEA, Italy

TRACEABILITY FOR SUSTAINABLE FOOD SYSTEMS

Traceability for the Agrifood sector represents a strategic tool for R&D, Innovation and competitiveness. An adequate Metrological Infrastructure is at the basis of food traceability and is one of the key elements for trade, economic and social development. It allows to demonstrate and guarantee the quality of products and services, to promote the innovation of products and processes and to ensure the cognitive bases for decision-making. In addition to the improvement of production both in terms of quality and safety, strengthening the infrastructure of metrology allows the development of research in various disciplines related to Agrifood system with important impacts on Food Traceability.

European approach to food traceability

Traceability has been introduced in the European legislation on food safety as a key element of the "Rapid Alert System", to respond quickly to food safety/quality incidents thereby ensuring that consumer exposure to the affected product is prevented or minimised. Traceability - Reg. (EC) 178/2002 and 931/2011 is related to "the ability to trace and follow a food, feed, foodproducing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution". Reg. (EU) No 1169/2011 on the provision of Food Information to Consumers (FIC) is strictly linked to the concept of traceability, with particular reference to the country of origin or place of provenance.

The existing EU traceability legislation is based primarily on the need to ensure food safety. It is set up on the concept of 'one step back – one step forward' along the food chain. In this context traceability

is based on a documental approach aimed to identify for each Food Business operator its immediate supplier(s) and its immediate customer(s), except when they are final consumers. However, the traceability requirements need both documental and measurement data to foresee readily origin information, playing on the double meaning of the term traceability (Documental and Metrological). From a metrological point of view, to prove the food authenticity requires the availability of suitable Reference Materials and the development and validation of methods based on the use - even contemporary - of different analytical techniques (including: IRMS, LC-MS , GC-MS, ICP-MS, NMR, NIR, XRF, RT-PCR) with the application of multivariate statistical analysis, and quantification and combination of uncertainty contributions. Metrology permit to develop methods for obtaining traceability and demonstrate authenticity from measurements data.

Consumer approach to food traceability

Consumers today consider the origin of the product in the 5th place in the priority of purchase after taste, expiration date, appearance and price. It becomes a more important element of choice if it is associated with information on the characteristics of the production practices and site, such as: environmental quality, production technologies, highlighting the relationships with the quality and / or the identity of a product. To this end it is necessary to promote research to identify markers of quality and origin (geographical, botanical, of process) and to carry out a systematization of the information related to the territories and to the various products.

The existing traceability systems in the EU, in terms of "cumulative traceability for origin determination purposes" is related to the Country of Origin (CofO) and the Place of Provenance (PofP) **Regulation (EC) No 2913/92** and its integrations. CofO and PofP of a Food can be not the same as that of its primary ingredients. Where more detailed traceability systems exist, these vary between the different kind of foods and do not extend beyond a) the unprocessed food phase (i.e. slaughterhouses/packing plants), b) single ingredient products and c) ingredients that represent more than 50% of a food. On the base of Art. 24 "*Country of origin*" means that "Goods whose production involved more than one country shall be deemed to originate in the country where they underwent their last, substantial, economically justified processing or working in an undertaking equipped for that purpose and resulting in the manufacture of a new product or representing an important stage of manufacture." "*Place of provenance*" means any place where a food is indicated to come from, and that is not the "country of origin". On 2015 the Commission adopted a Report on mandatory indications of the Country of Origin And Place of Provenance regarding a), b) and c). The analysis indicates that mandatory origin labelling would entail considerable increases in cost. Voluntary origin labelling generally tends to occur: 1. When there is significant interest of consumers; 2. Where traceability is feasible and at reasonable cost.

Traceability challanges

The issues related to the origin of productions are nowadays one of the metrology challenges for the agrofood sector. Particularly concerning geographical origin demonstration, the study of the relationships among the territory, the genotype and the specific characteristics of a product allows to deepen knowledge and perform integrated and interdisciplinary assessments of the agricultural ecosystem. It is possible to distinguish between "traceability of products", based on the study of "markers of products" (namely characteristics of a given product or ingredient, that can be taken as a tracer in the finished product), and "traceability of process", based on the study of "markers of process". Traceability of products can be referred to both geographical origin and biological origin, with reference to the botanical and zoological origin. For this purpose, different kinds of markers can

be used: chemical, biological and genetic. Some markers or characteristic patterns (fingerprints) can be strictly related to the biological origin or the agroecosystem of production, some others mainly to production factors, such as agricultural and zootechnical practices (e.g.: irrigation, fertilization, use of feedstuffs), climatic effects (e.g.: temperature, precipitations), geological (e.g.: soil composition) and geographical (e.g.: latitude, altitude, distance from the sea) parameters.

Research should permit to the production system to be "one step ahead" of the regulatory requirements, need to provide to the control system the adequate measurement tools and to the consumers the scientific evidence for making aware chooses of purchase and adopting correct food consumption practices. To invest in Food quality and safety means being able to place on the market products – or combinations of products – more sustainable and healthy and/or particularly appropriate for an increased consumption. In order to immediately convert Metrology approach in element of competitiveness with practical applications for the Food supply chain, it is necessary to promote information/education measures that allow consumers to make aware chooses towards value products, supported by an objective traceability system and regulation, laying the foundation that permit to establish the virtuous circle of supply and demand of more and more healthy and quality products.

Finally, considering the great importance of metrology for the agrofood sector, a proposal for a new pan-European Research Infrastracture for supporting metrology in food and nutrition has been submitted for the 2016 ESFRI call.

20. Elizabeth Elfman, DAI, United States of America

On behalf of DAI, thank you to the HLPE Steering Committee for opening the floor to comments. This report comes at a critical time and the key questions it seeks to address will help ground the global conversation on the multidimensionality of food systems and nutrition and the root causes of malnutrition. As part of the dialogue we also need to consider how market systems and value chains interact with food systems.

Although value chains within the worlds' food systems will be addressed through the driving dynamics of consumption patterns, we think it is vital that this report examine the broader challenges associated with key aspects of food and market system needs along the lifecycle – particularly complementary foods. The existing body of research indicates malnutrition in the first 1000 days of a child's life has significant, long-term consequences on educability, adult work productivity, and ultimately income and national capacity. Furthermore, we now know that stunting and its negative impacts are not easily reversed. As a result, complementary foods and feeding practices are fundamental in addressing child malnutrition and food and nutrition within this 1,000 day window are critical in addressing undernutrition within the context of malnutrition.

DAI's work up to this point tells us that some of the most significant challenges for the promotion of complementary feeding practices exist at the value chain level. In many of the neediest markets there is a minimal supply of processed, fortified complementary foods (PFCFs) at affordable prices. There are also opportunities within the value chain to better engage and empower women as producers, processors, and consumers of complementary food. To help rectify these deficiencies, DAI suggests that this report incorporate and research market-based pragmatic solutions to increase access to PFCFs.

This report will be a great resource to help further investigate the multidimensionality of food systems and the root causes of malnutrition, we suggest that the HLPE Steering committee incorporate research surrounding market systems, in particular foods tied to the development life-cycle and 1,000 day window.

Thank you!

21. Cecilia Gamboa, Ministry of Health, Costa Rica

El mejoramiento de los servicios de saneamiento, la manipulación de los alimentos y las tecnologías de almacenamiento en los sistemas alimentarios tradicionales podría potenciar la eficiencia y mejorar la inocuidad y la calidad nutricional de los alimentos.

Aumentar la eficiencia en la producción de alimentos nutritivos puede generar precios más bajos para los consumidores de manera que puedan optar por alimentos de alta calidad nutricional a precios más bajos y a la vez, represente ingresos más altos para los agricultores.

Reducir las pérdidas y el desperdicio de alimentos y nutrientes en los sistemas alimentarios en su totalidad podría contribuir de modo importante a una mejor nutrición.

Además se debe educar a los consumidores para que puedan seleccionar dietas variadas y equilibradas, así como aprendan a minimizar el desperdicio de alimentos.

Para lograr dietas saludables, además de sistemas alimentarios saludables, se requiere e educación, políticas públicas y apoyo político.

22. Hlamalani Ngwenya, South Africa

Links between diets, food consuption and habit

Attitude is a very critical factors that needs special attention when dealing with issues of nutrition and food security. In many instances, people tend to associate certain eating habit with socio-economic levels. Experience has shown that many people who would eat vegetables, beans etc due to poverty (or lack of buying power), show more tendencies of consuming more processed food, meat, take aways and other 'junk food', once their economic status change for the better.

This move is often associated with affordability and thus seen as placing someone in better economic cluster that everyone aspire. Such tendencies are more prevalent in rural areas as well as low to medium income classes in develoing countries. Therefore any effort for promoting healthy eating, nutrition and food security should be innovative enough and provide incentives to break such entrenched patterns and stimute attitudinal change that would lead to long lasting change in behaviour.

23. DR.D.Samuel Surname Murray, Member of presidential prayer team, UN eyes watch, world federation against drug

THE IMPACT OF NUTRITION ON YOUR HEALTH

Unhealthy eating habits have contributed to the obesity:Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness and even death. These include heart disease, hypertension (high blood pressure), type 2 diabetes, osteoporosis, and certain types of cancer. By making smart food choices, you can help protect yourself from these health problems

Make half your plate fruits and vegetables: Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert. The more colorful you make your plate, the more likely you are to get the vitamins, minerals, and fiber your body needs to be healthy

Make half the grains you eat whole grains: An easy way to eat more whole grains is to switch from a refined-grain food to a whole-grain food. For example, eat whole-wheat bread instead of white bread. Read the ingredients list and choose products that list a whole-grain ingredients first. Look for things like: "whole wheat," "brown rice," "bulgur," "buckwheat," "oatmeal," "rolled oats," quinoa," or "wild rice."

Choose a variety of lean protein foods: Meat, poultry, seafood, dry beans or peas, eggs, nuts, and seeds are considered part of the protein foods group. Select leaner cuts of ground beef (where the label says 90% lean or higher), turkey breast, or chicken breast.

Drink water instead of sugary drinks: Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar and calories in American diets. Try adding a slice of lemon, lime, or watermelon or a splash of 100% juice to your glass of water if you want some flavor.

Eat some seafood: Seafood includes fish (such as salmon, tuna, and trout) and shellfish (such as crab, mussels, and oysters). Seafood has protein, minerals, and omega-3 fatty acids (heart-healthy fat). Adults should try to eat at least eight ounces a week of a variety of seafood. Children can eat smaller amounts of seafood, too.
Public (health) policy establishes goals, strategies or procedures for government agency operations any level of government, consistent with their authority Laws legal instruments (e.g. codified, case or “common law”) generally heads of state or legislatures Regulations codified legal or administrative instruments which do not carry the weight of law generally technical agencies of governments (e.g. Ministry of Health) Technical guidelines operational procedures to be used within government agencies or programmes - may be mandatory or voluntary technical agencies or programmes.

24. Lindy Fenlason, Vanderbilt (previous), Independent but work with AAP, United States of America

Key Aspects to be addressed within the framework questions listed:

- Effects: Globalization and Urbanization
- Media Claims/messaging/regulation: what to believe (healthy, natural, best)
- Media targeting (children;, global populations drawn toward imported goods)
- Cultural aspects: which foods are acceptable, desireable, viewed as most healthy; who in the home purchases the food, who prepares it
- Influx of processed foods, acknowleding motivating factors (cost, shelf life, desireability by caregivers or children; food as reward,)
- Education: best modality (schools, PSAs, clinical, food labels,etc)
- Controversy over government regulations on availability, taxation, etc
- The realities of effects of subsidies and potential solutions

I welcome the opportunity to be of help as needed.

Lindy Fenlason, MD, MPH, PNS, FAAP

25. Robert Ackatia-Armah, International Potato Center, Rwanda

This consultation is important to bring together all the evidence that is currently available to support an evolving global food system that can address malnutrition. There are many different facets of malnutrition and no one solution can respond to it. It is important to realize that food systems also evolve with a cultural twist and as such changes in behavior and aculturation become relevant topics to discuss.

As governments move towards encouraging a fine balance between cultivation of cash crops and nutritious crops for national food baskets, evidence generation in a pulled effort becomes even more important in achieving this goal. Initiatives such as bioforiifcation of staples supported by CGIAR centers will also contribute to a changing food system in the contect of nutrition, sustainability, price/market fluctuation and climate change. More here http://cipotato.org/ .

We look forward to an engaging discussion.

26. Fardet Anthony, INRA, France

I think one main challenge is to combine healthy diets with all other dimension of sustainability, be environment, socio-economics, processing and so on. For this, I think there are as many solutions as different situations worldwide. each country has its own problem of health, i.e., deficiencies, over- and uner-nutrition.

Therefore, we have to think locally and develop sustainable healthy diets adpted to reality of each country. However, some global healthy guidelines can be defined, then we adapt them to local situations. Each country has not the same local productions, climate, food availability, etc.

27. Rubén Olmedo, FCA-UNC // ICYTAC-CONICET, Argentina

Buenos días. En cuanto a la consulta sobre los topicos Sistemas Alimentarios y Nutrición se encuentran bien orientado. Los problemas alimentarios presentan alta complejidad a la hora de evaluar los habitos alimentarios. Existen factores sociales relacionados al nivel de ingreso familiar; factores psicologicos como el sentido de pertenencia a diferentes grupos sociales como los deportistas, vegetarianos, etc; factores psico-fisiologicos como el gusto que se desarrolla por los alimentos ricos en lipidos y en sal el cual esta mas alla de decir que aportan sabor al alimento ya que conlleva internamente vias afectivas de placer transformandose en alimentos de orden adictivos para personas con factores geneticos predispuestos; factores micro y macroeconomicos regulados por politicas nacionales e internacionales.

Las familias de bajo recurso economico que sufren problemas de desnutricion y carencias de micronutrientes acomodan sus habitos alimentarios a la posibilidad de poder comprarlos. No se trata si pueden tener una filosofia sobre su alimentacion ya que no dependende de cuestiones culturales o de enseñanza sino de disponibilidad presupuestaria a la hora de poder modificar su habitos alimentarios. Las familias que poseen suficientes recursos economicos pueden modificar sus habitos alimentarios ya que en mucha poblaciones la hipernutricion esta asociada a un exceso de calorias y nutrientes debido a que estan al alcance de su poder adquisitivo. En dichos grupos la eleccion de una modificacion de habitos alimentarios se puede realizar mediante la enseñanza de una alimentacion mas saludable y tambien por asociacion sociologica a diferentes grupos culturales como la gente que realiza deportes.

Por otro lado el contexto economico global a la hora de la produccion de alimentos fija la produccion no en cuanto a que se necesita sino en cuanto a factores economicos. Cuando el precio de los comodities alimentarios internacionales disminuyen por un sobre stock de alimentos se genera una desinversion para la produccion primaria de alimentos conllevando a una posterior disminucion de alimentos para poder elevar los precios y mejorar la rentabilidad de las diferentes cadenas productivas. Esto atenta grandemente a las poblaciones con bajo recursos economicos. Ya que no pueden proveerse de diferentes alimentos a bajos costos y poder modificar sus habitos alimentarios. Se carece en muchos lugares de politicas estatales que aseguren la seguridad alimentaria y la diversidad alimentarias de la poblacion y solo queda regulada por los factores economicos que rigen la produccion de alimentos.

Cambiar los sistemas alimentarios y la regulacion de la nutricion con todos los factores que afectan es un gran pendiente que tienen que responder las autoridades. Realmente se piensa en los sistemas alimentarios y en la nutricion con una planificacion de la produccion primaria o son los factores macroeconomicos internacionales los que planifican la produccion primaria de alimentos?

28. Paula Dominguez-Salas, RVC/ILRI, United Kingdom

Thanks to the HLPE Steering Committee for this initiative. A better understanding the forces and drivers of production and consumption can help shaping food systems for better nutrition, as well as to shape consumer's perceptions.

I agree with some of the comments that it is too big, and food systems might be very diverse (i.e from long complex commercial chains to subsistence systems in many developing countries), so might be good focus on some specific strategic targets (which would not be completely clear to me from the initial note) and structure the report around that, keeping focused, rather than around general

questions. Trying to be too inclusive can be challenging, but might also lead to the report being too broad and unspecific. Personally, I think it should be important to have substantial focus on nutrient-rich foods (i.e. animals-source foods, pulses and fruits and vegetables) which are at present limiting factors for the majority of populations. And also to seek complementarities with previous HLPE reports, where I think there will be some degree of overlap.

A good approach towards a comprehensive understanding of food systems in the value chain analysis, which explores in detail aspects such as governance, inequities, upgradings, etc. In terms of the target population groups (throughout life cycle), I think it should go beyond pregnant and lactating women (i.e. women of reproductive age, including adolescents) since the nutritional status in which women arrive to pregnancy is also important.

Regarding the point of solutions in practise, I think that it will need to include issues of optimisation of resources, sustainability, food safety throughout the chains and efficiency (ensuring wastage reduction). Solutions need to highlight the need of policies weighing carefully the interest of the individuals (i.e. big single companies) versus the public interest (i.e. consumers and actors of the value chains).

Thinking of the usefulness of the report (again related to the strategic objectives) it would be good to keep in mind issues such as efficient policy-making to make an impact in nutrition and policy monitoring (i.e. surveillance systems to ensure that any new policy does not have side-effects in nutrition) and evaluation, and also how to spread value through the different actors of the chain so that it can promote small and middle size business.

29. Bisi Bright, LiveWell Initiative LWI, Nigeria

LiveWell Initiative LWI is a self sustaining nonprofit Social Enterprise which works with populations across the spectrum, and in particular with the base of the pyramid (BOTP) populations.

BOTP is a peculiar population group which carries great significance in determining the fate of every nation, community or peoples...they are the defining bottomline.

Many times, the BOTP are significantly undernourished or malnourished with resultant ravaging effects of their poor nutritional states on the economy, as productivity is hampered, illness and disease become rampant due to vulnerabilities imposed by a poor nutritional state and low immunity and the resultant effect is, poor disposable income, poor quality of life, low productivity and low Gross Domestic Product. The national figures (GNP) is therefore lowered.

In Africa, malnutrition ravages the young and the old alike.

As an organisation which has worked with various demographic groups along the population spectrum, we have found that malnutrition worsens poverty, and may be regarded as a significant Cause of poverty.

No wonder then in 2012, the LiveWell Initiative Multisectoral Grand Health Bazaar GHB2012 focused on Health versus Wealth, bringing in the Central bank Governor, Bank MDs and Top Financial Experts to debate on the hot subject of the paradoxical relationship between health and wealth and, its consequences in both directions.

HLPE will help to steer the world in the right direction; the elimination of poverty and disease alleviation can not be achieved if hunger and malnutrition remain. Thus, in answering to SDGs 2 and

13 the health curve will be significantly changed and other SDGs 1,3,5,6 and 17 which are the SDG Goal Pursuits here at LWI, will be significantly attained intermittently.

LWI supports and encourages the HLPE Cause, as a means to ending Poverty and Disease worldwide.

Thank you.

LiveWell Initiative LWI and SDGs

LWI pursues SDGs 1,3,5,6,and 17.

1. LWI IPAP  1.	End Poverty in All its forms Everywhere
3. LWI IPAP, EHES, BAY, GREEN, easyhealth, NCDs, Health Fairs, Home Healthcare, HomeHospital  	Ensure Healthy Lives and Promote Wellbeing for All at All Ages
5. LWI GENDER HEALTH,MNCH  	Achieve Gender Equality and Empower All Women and Girls
6. LWI Personal Hygiene Handwashing & Etiquette, Aseptic Technique, Ebola Awareness  7.	Ensure Availability and Sustainable management of Water and Sanitation for all people
1. LWI ACADEMY, GHB Grand Health Bazaar  2.	Strengthening the means of Implementation and Revitalize the Global Partnership for Sustainable Development

30. Lizzy Nneka Igbine, Nigerian women agro allied farmers association, Nigeria

Nutrition ssues are is a general issue as it cuts accross all cadres of human beigns.

A core sturdy should be centred on Nutrition For Who. What forms of Nutrition are we dealing with?

Food content and pre harvest condition should form part of the studies.

We look forward to further consultations where we can contribute.

Profile of Niwaafa: http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/PROFILE%20OF%20Niwaafa.2_1.docx

31. Jean Marius D'Alexandris, Lyseconcept, France

Lyseconcept développe un concept biotechnologique de traitement d'épuration et de recyclage des eaux usées qui permet d'éliminer entièrement la matière fécale.

L'eau de rejet en sortie du procédé "Fosse Biologique"lyseconcept contient de fines particules de matière organique en suspension ainsi qu'une flore bactérienne active qui en font un élément fertilisant pour la terre végétale

La performance épuratoire du procédé "Fosse Biologique"lyseconcept est de 90% hors sol complété par l'exutoire végétalisé qui lui purifie le sol de la pollution diffuse telle que : urée ammoniaque azote nitrate phosphate potasse etc, ce qui donne pour l'ensemble une performance d'épuration de plus de 98%

Le concept se décline sous la forme de projet

le PROJET Revalorisation des Eaux usées pour une Agriculture Biologique Productive sur des exploitations agricoles en Afrique Sénégal Cameroun Cote d'Ivoire Burkina Burundi Bénin Mali RCA Niger Mauritanie Congo Conakry Guinée RDC Sierra Léone Gabon Mayotte Inde Monténégro Kenya Ouganda etc

le projet de Revalorisation des eaux usées - Biodiversité végétalisée. Il lutte contre l'érosion des sols, tout en favorisant la création de zones vertes pare-feu.

le projet recyclage d'eau- Banque Alimentaire pour une réinsertion honorifique dans le monde du travail

le projet Recyclage d'eau pour une réduction de la consommation d'eau

L'A.B a une action pédagogique de préservation de l'environnement

E-mail: lyseconcept@gmail.com

http://www.viadeo.com/invitation/jean-marius.d-alexandris

https://www.linkedin.com/profile/view?id=76857248&trk=nav_responsive_tab_profile

http://www.creabpa.fr

http://www.lyseconcept.frhttp//www.interet-general.info/spip.php?article19572 .

Eaux Usees Agriculture Biologique

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Eaux%20usees%20agriculture%20biologique%20%20senegal.doc

32. Eileen Omosa, We Grow Ideas, Canada

Food systems, diets and nutrition

The issue of change in diets is historical and attributable to many factors including changes in crops grown on farms, availability of new food crops on farms or through the market, health conditions requiring one to alter their diets, changes in climate that has an influence on food crops grown, hunger and famine which forces people to consume whatever foods availed to them, advertisements with messages presenting particular food items as the best, and migration which takes individuals and groups to faraway places where available foods could be different from what they previously consumed in their locality. In relation to the last point on migration, I am currently involved in a research project on food choices of multicultural university students. The objective is to establish what food items students living away from "home" choose to eat and factors influencing the choices made. The study is part of a wider project on diversity, food choices and wellbeing – happy to share the report when ready.

To an extent, the issue of consumer habits and food systems relates to advertising and marketing. The world is moving towards a trend where industry is very visible in the food market from production to processing and sales. Being a business, we are witnessing a move towards mono-cropping (easier and profitable way to produce food) with a bias for grains and cereals. There exists aggressive marketing of products to rural areas where households faced with a variety of challenges opt for the easily available food items with less attention to the nutritional value provided. To informed consumers, limitations in food varieties and nutrients is being filled with food supplements; easily availed by another sector of industry.

The increased level of "lack of time" by most of us implies a readiness to embrace whatever answers industry provides in the form of food items and food supplements. To this level, households that lack information on balancing nutritional requirements end up consuming a few food varieties that do not provide the necessary nutrients, yet they have limited access to supplements until they are unwell and go for medical attention.

The challenge here relates to how best to educate households on food groups and related food items. Mass education projects, especially in rural areas to encourage households on the need to continue to cultivate a variety of foods to meet their nutritional needs. The current challenge is situations whereby households cultivate and market food items that are high in nutrients, and in return purchase food items of comparably less or no nutritional value. Such decisions relate to current marketing messages and opening up of trade: richer markets can afford to pay a higher price for locally produced organic and nutritionally rich food items. Poor households become vulnerable as their need for money for

other necessities push them to sell their best harvest, mainly the ones full of nutrients. The challenge takes back to SDG 1 and 2 before Goal 3 can be met.

What will be the best way to counter marketing messages that encourage people to consume over-processed foods of low nutritional value?

One way could be through the formulation of policies that encourage industry to take responsibility in cases where their foods contribute to high levels of malnutrition of individuals or groups? On the other hand, what kind of information is required to convince people that cultural/ethnic foods are good for them, especially for the near future when a higher percentage of the world's population will be urban-based? What makes individuals to strive to be uniform, yet diversity is enriching?

At the level of governments lies a concern on policy support and the signing of trade agreements with less consideration on how food exports and imports impact on the nutrition of local people. A good example is when governments sign trade agreements, e.g. to supply local foods such as fish to international markets, even in cases where they are not able to meet the fish requirements in local markets. How do we get government ministries in charge of trade to put nutritional health before money? One way could be a thorough analysis to demonstrate linkages between poor health and government expenditure on the provision of health services – when government supported trade agreements result in the export of nutrient filled foods from rural to urban areas and international markets, the national government could have higher health care expenditures to cater for malnourished and nutrient deficient individuals = with a ripple effect to education, manpower, governance, productivity, etc.

What comes first, health or wealth?

There is need for the synthesis and wider dissemination of case studies demonstrating the value of locally grown, cultural/ethnic-based foods. There is already enough literature out there establishing that more and more educated and wealthy people are reverting to indigenous foods as the easy way to meet their nutritional needs. How best to share similar messages to get households to produce and eat local, to diversify livelihood strategies as a way to avoid the sale of household foods as the only means to provide for other necessities = poverty alleviation

33. Moises David Rojas Peña, MIC/Punto Focal FAO, Dominican Republic

Todos los alimentos, desde el brócoli hasta una malteada de chocolate, contienen nutrimentos que necesitamos para sobrevivir. Los nutrimentos se clasifican en seis categorías lípidos, carbohidratos, proteínas, minerales, vitaminas y agua. Estas sustancias satisfacen las necesidades básicas del cuerpo, incluyendo energía y materias primas para sintetizar las moléculas de la vida, enzimas, proteínas estructurales, materiales genéticos, portadores de energía, el calcio que componen los huesos y los componentes a base de lípidos de todas las membranas celulares.

La energía que quema el cuerpo son las calorías que se obtienen de los alimentos. Las células dependen del suministro de energía para mantener su increíble complejidad y realizar una amplia gama de funciones. Cuando se es priva de esta energía, las células comienzan a morir en el lapso de unos cuantos segundos. Cuando se suspende el suministro de alimentos requeridos el cuerpo empieza un proceso de decadencia física que se presenta como desnutrición y anemia crónica.

En la Republica Dominicana el promedio nacional de desnutrición a nivel nacional es de 3.1%, y en las provincias fronterizas es de 10.5% y un 14% en los niños y niñas de madres haitianas. Los efectos de la

desnutrición, la diarrea y las infecciones respiratorias agudas han causado la muerte a los menores de un año. De la población de niños entre 2 y 9 años el 4.5% padece algún tipo de discapacidad y la desnutrición infantil crónica se incrementó de 6.1% a 7.2%. En los primeros 5 años de vida ocurren los cambios más importantes en el crecimiento y desarrollo. El 5% de esto menores se clasifican como desnutridos y casi 1 de cada 100 niño como desnutrido severo. En la edad del detecte la cual oscila entre 12 a 23 meses se encuentra un alto porcentaje de desnutridos ya que los infantes comienzan a moverse por sí mismo y, posiblemente, a ingerir sustancias no limpias y/o contaminadas.

La lactancia materna es el alimento ideal para la población de recién nacidos, ya que la leche materna proporciona uno de los mayores aportes nutritivos para su crecimiento y desarrollo físico, mental y afectivo de la niñez y es que esta leche contiene anticuerpos que sirven de protección de enfermedades como son: la diarrea, gripe, alergia, y otras infecciones de diferentes orígenes. Entre la población de 0 y 3 meses de edad, solo el 6% de los niños son lactados. El 4% recibe alimento con pecho materno exclusivo. Un 36% de niños y niñas de 6 a 9 meses recibe leche materna y comida solida/blanda. Entre la población de niños y niñas de 12 a 15 meses el 38% están lactados. Esto nos indica que un alto porcentaje de niños y niñas no reciben lactancia.

En la Segunda Conferencia Internacional sobre Nutrición, en su discurso a la sesión plenaria, Su Majestad la Reina Letizia de España reiteró que la malnutrición es la causa principal de enfermedades en el mundo. La Declaración de Roma reafirmo los compromisos contraídos en la primera Conferencia sobre Nutrición de 1992, donde se compromete a los países a erradicar el hambre y a prevenir toda forma de malnutrición en el mundo, en especial la desnutrición infantil y la anemia en las mujeres y niños entre otras carencias de micronutrientes, así como a invertir la tendencia a la obesidad. Además, compromete a los países a adoptar medidas para transformar sus compromisos relativos a la nutrición en acciones concretas.

De estas acciones concretas dependen la alimentación de 840 millones de personas que están subnutridas a nivel mundial y, la mayoría de ellas – 827 millones – se hallan en los países en desarrollo.

La Republica Dominicana pertenece a los países en desarrollo y dada la característica geográficas e insulares nuestro país está expuesto a sufrir los efectos del cambio climático, como los son fenómenos climatológicos extremos y recurrentes como huracanes y tormentas tropicales, donde las condiciones de inestabilidad socioeconómicas y degradación ambiental, determinan fuertes presiones hacia el medio ambiente. Los principales impactos en materia de variabilidad climática se ven reflejados principalmente en las provincias fronterizas con Haití, las cuales son las más pobres del país. A la vez, las regiones agropecuarias de la zona, están amenazadas de manera permanente por eventos naturales y por actividades antropogénicas, generando emergencias y desastres a lo largo de las regiones sur y este.

En la agricultura, los mayores impactos que se registran son causadas por la sequias, las inundaciones, perdida de la agroproductividad, la migración de zonas agropecuarias a mayor altitud, tormentas tropicales, huracanes, incendios forestales en gran parte del país y el aumento del nivel del mar que año tras año va en ascenso.

La presencia de plagas en nuestros cultivos ha causado serio problema con pérdida económica en millones de pesos y empobrecimiento de nuestros productores agropecuarios. Por ejemplo; La enfermedad de la Roya (Hemilenia vastatrix), este hongo a colapsado a grandes hectáreas de cafetales, teniendo pérdidas significativas, principalmente en las provincias de Barahona en Polo y en la región del Enriquillo. La plaga del gusano del maíz (Spodoptera frufiperda), el cual es considerado como un insecto de plaga primaria del cultivo de maíz y segundaria del algodón, arroz y algunas hortalizas en

todo el territorio nacional ha causado perdida en cultivos entero. La plaga de la mosquita blanca, en el frijol, ha traído problemas en todo el país con pérdidas totales, atacando principalmente ante de la floración.

En los cultivos de arroz se detectan serios problemas a causas de incendios en zonas como limón de Yuna, San Francisco, Nagua, Mao, San Juan, y en los cultivos de cacao por la presencia de roedores que acaban con los cultivos enteros en localidades como Puerto Plata, San Francisco y Miches. La enfermedad de la sigatoka negra ha causado serios problemas en la comercialización de los cultivos de banano, en las provincias de Valverde, Montecristi, y Azua.

La variabilidad climática ha producido fuerte impacto en la agricultura de todo el territorio nacional. Los principales impactos que se registran son: sequia e inundaciones en las regiones del suroeste, desde san Cristóbal, hasta la frontera, así como en el suroeste, desde Santiago hasta la frontera, contemplando las zonas más importantes de producción de Cibao; la perdida de la agroproductividad tanto de suelos como de cultivos principalmente y, las tormentas tropicales y huracanes en vertiente sur de la Cordillera, Sierra de Neiba. Se prevé que la mayoría de los cultivos colapsaran a la mitad de su productividad actual entre los años del 2020 y el 2060.

La investigación en términos de cambio climático, agricultura y seguridad alimentaria en el país se está desarrollando principalmente en adaptación y mitigación, así como en gestión de riesgo climático. Las políticas públicas y el marco normativo actual se estructuran en base a la Estrategia Nacional de Desarrollo y en una propuesta de la Ley General de Cambio Climático, de la cual se derriban diversas estrategia y planes así como numerosos instrumentos de gestión con los cuales podemos contar; Tratados internacionales, leyes, reglamentos, acuerdos, políticas estrategias, programas y/o planes operativos divididos en: cambio climático, seguridad alimentaria, agricultura, gestión de riesgos, forestal y economía verde.

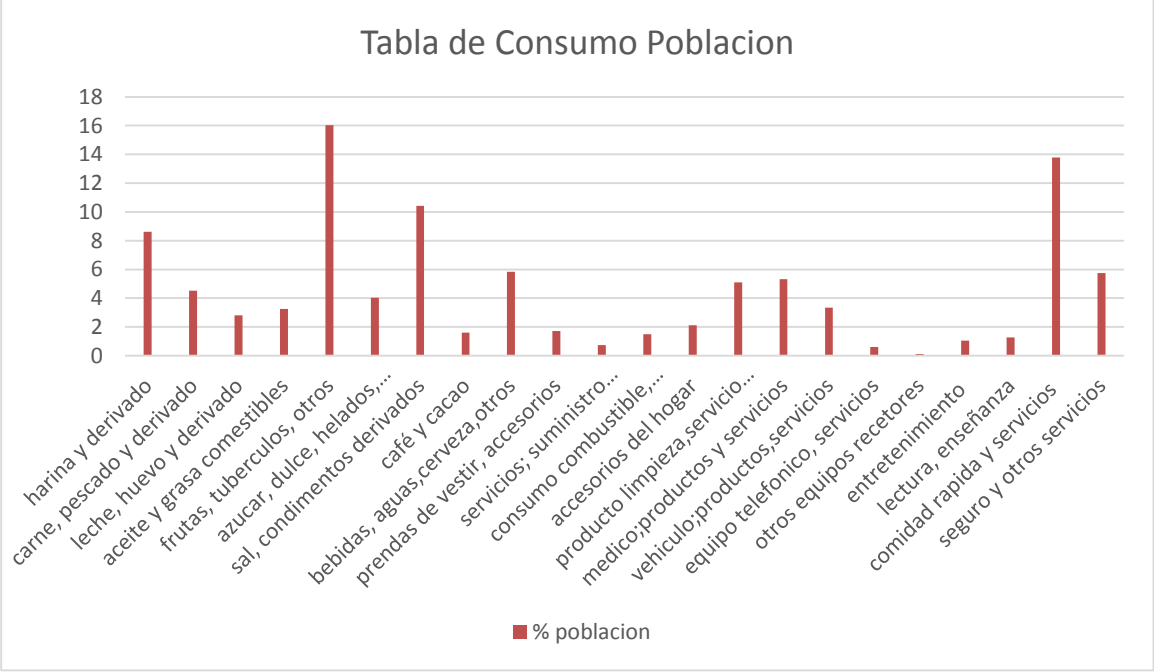
Para enfrentar la situación con acciones concretas propongo un proyecto basado en la consulta y recopilación de información de datos, para la coordinación, cooperación y coherencia eficaces entre todas las partes interesadas. Motivando la participación y el compromiso de las partes interesadas, la rendición de cuentas, la creación y adaptación de mecanismos eficaces de financiación y planificación y la elaboración, aplicación e integración de políticas y medidas a corto, medio y largo plazo encaminadas a promover y crear medios de vida resilientes y reforzar los sistemas alimentarios locales.

Estas acciones concretas propongo desarrollarla en la Región Enriquillo la cual en la parte más meridional del suroeste del Republica dominicana y está formada por la provincia Barahona, Pedernales, Independencia, y Bahoruco. Posee una superficie de 7,102,58 Km.2 representando el 15% del territorio nacional. Cuenta con 327,636 habitantes. Es la zona con menor densidad de población del país.

La población de Enriquillo padece condiciones de vida pobres y muy pobres. Registra el índice de pobreza más agudo del país. El 90% de los hogares reciben ingresos mensuales de inferiores a RD$1,000.00 (US$75.00). Esta región presenta la cobertura de agua potable más baja y la mortalidad infantil más alta, 65,44 por cada mil nacido. En el ámbito de la educación la tasa de analfabetismo en la población de 15 años y más son muy superior a la media nacional con 27.52%. de analfabetismo. La situación de pobreza de la Región es evidente, en Bahoruco el 86% de los hogares son pobres y el 45% vive en condiciones de ¨pobreza extrema¨, en Independencia los indicadores son del 81.9% de hogares pobres y 36.6% ¨pobreza extrema¨, en Barahona el 86.6% son hogares pobres y el 38.97% vive en extrema pobreza, en la provincia Pedernales el 73.2% son hogares pobres y uno de cada cinco viven en condiciones de extrema pobreza.

El problema común en estas áreas es el uso inadecuado de los Recursos naturales, principalmente del recurso del agua que influye sobre la producción agrícola, en la productividad y el ingreso del campesino; sobre la salud de la población, y sobre el medio ambiente, lo cual impide mantener la biodiversidad de la zona y produce el grave problema de la deforestación. En el caso de la salud, la escasez de sistemas de distribución de agua potable y de medios para potabilización hace que una parte importante de la población no tenga acceso al agua potable o la reciba en mala condiciones.

El consumo de bienes y servicios se nota limitado y en base a la tabla de datos se observa una dieta con poco nivel nutricional. El 88.89% de la población no reciben ningún tipo de ayuda del gobierno. El 8.62% basa su dieta alimenticia en harina y sus derivados. El 4.51% y 2.8% consumen carne, pescado, leche y huevos, respectivamente a pesar que estos alimentos son los principales aportadores de nutriente al cuerpo. Por esta y otras causas es el alto grado de desnutrición en la región, 10%, siendo el valor más alto de todo el país. Se destacan el consumo de frutas y tubérculos, el 16.04% de población ingieren frutas en sus dietas. Sal y condimentos 10.43%, bebidas alcohólicas 5.84%, servicios y productos médicos 5.33% y comida rápida 13.79%. La población de la región Enriquillo es de poco recursos económicos y relativamente enferma con poco nivel de alimentación saludable con alto grado de desnutrición y obesidad.



La población de Enriquillo es relativamente joven, compuesta por un alto porcentaje de manos fuerte y en edad para el trabajo. El 24.28% están en el rango de 0 – 9 años de edad, de 10 – 14 años 12.95%, de 15 – 29 años 26.08%, de 30 – 49 años 20.03%, de 50 – 64 años 8.44%, de 65 – 85 y más años 8.64%. Según la encuesta del ministerio de estadística el 27.52% de la población es analfabeta y el 51.29% al momento de la encuesta no trabajan y un 48.71% se encontraban realizando alguna actividad laboral. Para el 20.78%% de la población su principal ingreso consistía en ingreso laboral y, del otro lado el 79.22% no percibía un ingreso fijo. La población de Enriquillo, posee una gran cantidad de mano calificada para ejercer puesto de trabajo desde miembro de la fuerza armadas, médico y técnico en las diferentes ramas, pero hay un dato que quiero resaltar es que, a pesar de ser una región agrícola solamente el 12.74% se dedica a la práctica de la agricultura, trabajo pecuario y peones agrícolas y el

13.10% son productores agrícolas, situación que afecta negativamente a la producción de alimentos y la seguridad alimentaria.

Para la agricultura, la región posee diferentes tipos de clase de suelo. La tierra que cuenta la región para el aprovechamiento agropecuario intensivo, siempre que se realice practica adecuada de manejo y conservación abarca desde la clase I hasta la IV la cuales poseen una extensión de 1,075.4 Km2. La clase I, II, III presentan excelente característica productiva. Sus suelos son profundos con excelente profundidad natural, relieve de plano ligeramente ondulado, bien drenado, lo que posibilita la implementación de regadío, con una fertilidad de excelente a media. La clase IV es la que presenta mayores límites de uso, siendo recomendada solo para cultivos anuales con prácticas de conservación y manejo más intensos para evitar su degradación para la abstención de una óptima rentabilidad en los cultivos.

Los suelos clase V y VI poseen un área de 1,380.9 Km2, son apto para pastos, cultivos de arroz, cultivos permanentes, aprovechamiento forestal y también para la producción pecuaria. Para estos suelos, su mayor limitación es la inclinación del terreno con presencia de grava, y la superficialidad de los suelos. Por estas razones son vulnerables a las inundaciones y la erosión hídricas.

Para concluir, luego de esta descripción de la Región de Enriquillo con la finalidad de alcanzar el objetivo de desarrollo de la misma, esta iniciativa pretende movilizar un compromiso de la comunidad en general y promover procesos coordinados de múltiples partes interesadas, como por ejemplo el examen del progreso y la puesta en común de las enseñanzas adquiridas, con objeto de fundamentar políticas y medidas encaminadas a prevenir, mitigar y combatir la inseguridad alimentaria y la malnutrición y a promover la recuperación en tales situaciones. En esta propuesta se resumen los principios y medidas que pueden ayudar a las partes interesadas a mejorar la seguridad alimentaria y la nutrición. Involucrando a todas las partes interesadas como; instituciones públicas y autoridades locales; agentes políticos y de mantenimiento y consolidación de la paz; autoridades tradicionales; organizaciones intergubernamentales y regionales; instituciones financieras, donantes, fundaciones y fondos; organizaciones de la sociedad civil; organizaciones de investigación, universidades y organizaciones de extensión; entidades del sector privado; agricultores (especialmente los agricultores en pequeña escala) y sus familias; organizaciones agrícolas; comunidades y miembros de las poblaciones afectadas; organizaciones de consumidores.

34. Anil Kumar, MS Swaminathan Research Foundation, India

First of all, it must be congratulated CFS's efforts to address the Food and Nutrition issue of the present and future generations through a review of both academic and experiential knowledge. It is also heartening to note that these efforts are being tied up with implementation of the Sustainable Development Goals (SDGs).

Having observed the right direction of CFS for Food and Nutrition, I am giving my views and comments on the Issue Note on "Nutrition and Food Systems".

The Note brings almost all major issues to be covered up in the intended Report that describes the critical relationship between food systems and nutrition. Along with the particular SDGs- the goals 2, (zero hunger) and 13 (climate action), the goals 3, that targets good health and well-being; and 12 responsible consumption and production shall get adequate attention.

Further, the report shall examine FS&N with equal emphasis as given for other pertinent issues for the following concerns as well:

2. How do changes in ecosystems affect changes in diet? How do such changes lead to man-animal conflict and food production? How do we address the trade -offs in biodiversity conservation and FS&N?
3. How do changes in gender dimensions at food production regimes (it is said about 80% of the food production in south Asian (most under nourished and hidden hunger laid region is done by women) affect the FS&N. The changes in gender relationships play a huge role in changes in diets and thereby in nutrition.
4. The role of Market should get more focussed discussion and reporting as both a challenge and opportunity in promoting diverse food systems. The scalability and transportation issues largely determine the change of food system.
5. The report shall bring as many successful cases that are presented briefly as evidences that addresses the triple burden of malnutrition in different parts of the world.

35. J.B. Cordaro, PSM consultant

Overall perspective

In general the OEWG on nutrition appears to be progressing well as demonstrated by: (1) the good advance preparation of materials for the initial meeting; (2) impressive attendance numbers; (3) constructive interventions and general consensus and alignment from inputs in discussion; and (4) secretariat openness and flexibility for moving ahead re next steps towards the February 25 OEWG meeting # 2.

Proposed Area of focus of the HLPE Report on Nutrition and Food Systems

Agreement that focus on nutrition and food systems is the proper focus versus zeroing in on one discrete problem. The expected report on the different elements of food systems that influence food consumption and nutrition should be an invaluable tool to highlight the multiple challenges and interrelationships that can be prioritized for decisions on future work streams either for deeper analysis or for planning and implementing policy changes, programs and stimulating stakeholder actions.

Potential areas for CFS further involvement in nutrition

CFS can enhance the likelihood of better understanding how to build out its exploration for greater involvement in nutrition and communicating the rationale for such by using mapping techniques in key areas such as: (1) mapping elements of and relationships of the food systems and collateral components; (2) roles of stakeholders; (3) clarifying distinction of the roles among UN institutions and interagency platforms; (4) need to establish means to link, share and collaborate OEWGs of on nutrition and SDGs; (5) CFS should provide interactive debrief on ICN2, SDGs to HLPE; (6) work out with existing UN entities how CFS can get better on the ground perspectives to infuse real time insights of Secretariat and HLPE; (7) don't limit sharing lessons learned to south-south…north has much to offer; (8) establish framework for collection, maintenance of information;(9) prioritize; i.e. value convening and reporting implementation of ICN2; (10) suggest a free stand, full day for awareness

special event versus shoe horn in CFS 43; (11) expand organization base of event and invitees; (12) urge use of a term stronger than “mainstream nutrition” and suggest high consideration to using the term “embed nutrition.”

In closing, would be negligent if did not take note of the critical needs to find means to bridge resources

Deficiencies through a variety of mechanisms from revenue generation, soliciting in kind support and services and personnel secoundments.

36. Michael Krawinkel, Justus-Liebig-University Giessen, Germany

The questions raised for the preparation of the report are adequate regarding the diversity of the food systems. To reflect this diversity - and this means to point on decentralized solutions for food insecurity - is of outmost importance for the report.

The interdisciplinary approach drawing attention at agriculture, nutrition, and health linkages is ambitious, and it will be crucial to assemble a group of experts from all three fields. As human behaviour is complex also experts on human anthropology may need to get involved. Terfore, the panel may need to identify thos experts and specifically invite them to collaborate.

37. Zaira Valderrama, General Direction of Health Promotion, Ministry of Health of Mexico, Mexico

Mexico, like most countries, is undergoing through a serious public health threat: obesity and non-communicable diseases. This situation still coexists with nutritional deficiencies such as malnutrition or anemia, to name the most common. Food insecurity plays a very important role in the folding of both problems.

Each country has implemented policies and actions that seek to address this double burden of disease (obesity and nutritional deficiencies), and although such policies are focused on the national and international scientific evidence, in many cases, the influence of the food security is neglected in strategic plans of action.

Mexico currently works a comprehensive public policy focused on the prevention and control of overweight, obesity and diabetes (diabetes is the leading cause of morbidity and mortality in the country), the National Strategy for the Prevention and Control of overweight, obesity and Diabetes. The Strategy proposes the integration of three pillars and six strategic areas:

1. Public health: Including health promotion strategies and communication and education interventions and a preventive approach.

2. Medical care: The goal is to strengthen the first level of attention in early detection and resolution.

3. Regulation and Fiscal Policy: The country is implementing a new set of regulations that includes a tax on sodas and sugary drinks, the banning of advertising of high caloric products targeted to

children and new guidelines for food and non-alcoholic beverages distribution in the National Schools System.

Furthermore Mexico has developed a scale to measure food security of its population, called the Mexican Food Security Scale (EMSA) which addresses the dimension of access to food for estimates of poverty in the country. The scale is constructed from a set of twelve questions that consider the quality and adequacy of food through auto-report.

However, in light of the current sedentary lifestyle that accompanies globalization; the food industry and its production; urbanization; and the climate change, the serious problem posed by obesity and non-communicable diseases asks for food security to be immersed in all the policies.

The following are recommendations for the implementation of food safety in health policies:

- To perform national surveys to monitor food security and propose an evidence-based discussion around policy revision.
- To assess if regulatory measures (such as the tax on sodas) has contributed to change the population´s diet.
- To promote a dietary guidance to the population is provided and if it has contributed to healthier environments in terms of proper nutrition in populations, households and individuals.
- To monitor food waste in commercial food systems and in homes, and to assess to what extent it affects the chain of production and the product offering to the population.
- Policies should promote the rescue of healthy traditional food culture through innovative strategies, from dietary guidance to urban food production.
- The food security actions must have an intersectorial approach, in which the civil society, the private sector, the public sector and the academia collaborate and share responsibilities.
- To create and implement strategies including agro-technologies focused on the production and distribution of food, which means to invest in research focused on this areas.
- To strengthen the information and awareness to people about how pollution affects their diet, both in access and consumption.

38. Roberto Azofeifa, Costa Rica

Felicitaciones por el esfuerzo que hace el grupo de colaboradores del HLPE. Su trabajo, un aporte en el continuo desafiante para lograr popularizar los estilos de vida saludables, es de gran importancia.

Los temas que se plantean como parte de la "Issues Note", son sumamente relevantes. Sería muy bien si en cada uno de los temas se incluyeran ejemplos concretos y breves, de casos exitosos, sea que ya fueron realizados, o que están en marcha o que se plantean iniciar.

Los temas alrededor de los SFS, considero que son complejos por la diversidad de actores e intereses particulares de cada tipo de actor participante en las agro-cadenas. El abordaje a la identificación de las limitantes y fuerzas impulsoras del SFS, es inexistente en la mayoría de los casos y carece de integralidad cuando se hace. Se requiere una visión renobada de lo que son los Sistemas Agro-alimentarios y su importancia desde el punto de vista de la salud pública, el bienestar de la población, la economía de cada uno de los actores, la biodi versidad, el cambio climático, la supervivencia del ser humano.

Coincido con las ideas de la Sra. Ministra de Salud de Costa Rica. Se debe trabajar mucho en aspectos de mejoramiento de la eficiencia, no solo de la producción, sino de toda la agrocadena en los SFS prioritarios para cada país. Se debe trabajar mucho para educar a consumidores en el almacenamiento y preparación de alimentos. Se debe capacitar y exigir a los productores la producción inocua, la eficiencia, el uso de agua, el uso de residuos agrícolas orgánicos como fuente de energía, la utilización sostenible de la biodiversidad, entre otros. Se debe educar a las comunidades para aprovechar los espacios disponibles para la producción comunitaria de alimentos, que la población descubra "haciendo" lo que cuesta producir y el valor de los alimentos, para que no los derroche.

A veces son acciones muy simples las que se requieren, pero se le teme a lo simple, o quizá, por parecer simple, no se le pone atención.

39. Frank Eyhorn, HELVETAS Swiss Intercooperation, Switzerland

The proposed scope and approach of the envisaged report are appropriate. It is essential not to look at nutrition only from a diet perspective, but to understand the complex interlinkages with food systems. The choices we make with regard to nutrition and food systems are among the most decicive factors determining social, environmental and economic sustainability at global level. Considerable knowledge is available on the different facets of the problem, and there is increasing consensus on the criteria that more sustainable nutrition and food systems need to meet. However, there is less clarity and agreement with regards to actionable solutions and effective drivers of change. This report should therefore strive to provide guidance for feasible development pathways, rather than focusing on "admiring the problem".

The proposed focus issues are relevant . For above mentioned reasons I suggest to give due attention to the following aspects:

- What role for diversified smallholder agriculture to improve nutrition?
- How do diets determine the sustainability of food systems?
- What drives change towards more sustainable food systems?
- Health concerns related to pesticide use in food systems: what are the implications?
- How to effectively educate and sensitize consumers on adopting healthy and sustainable diets?

40. Malambo Bwale Choobe, Zambia

My contribution is on how to shape and to address pathways to healthy nutrition. In my country Zambia alot of programs have been put to combat healthy nutrition in health institutions with the help of government and non governmental organisations, despite all this we still see the levels of healthy nutrition not reaching the expected goals.

From my analysis the following should be taken into serious consideration only then shall we have reached the intended population with vital information concerning healthy nutrition.

1. Education: people have food, but how to prepare it and get the best of nutrients out of it they don't know. There is still alot to be done when it comes to educating people on the food composition and recommended dietry intake. People eat because they have not what they get out of the food. Here we have availability and qauntity. People eat to get satisfied or full and not what nutritional value is in the food.

Educating the grassroot with vital healthy nutrition will help improve the various leaders identify the people's nutrtional needs and work towards achieving optimum nutrition. The people will request for specific inputs from various government once they have been educated on the importance of healthy nutrition and not just waiting to be assisted when they have challenges.

Mobilisation of community nutrition care givers or educators will help in full dissemination of information concerning healthy nutrition starting from household level, community level and indeed nations at large. Crop growing among communities should be encouraged to enable each household have readily available fresh foods all the time. We need to educate communities out there on the benefits of having back yard gardens to cousion their meals instead of buying all the time.

Much can be done when the community and stakeholders are involved.

41. Gro-Ingunn Hemre, NIFES, Norway

In the context of Food Security and Nutrition (FSN) fish can secure several essential nutrients, which can be either insufficient or deficient in parts of the human population. Example of these nutrients are marine long-chain n-3 fatty acids, essential amino acids (protein), iodine, vitamin D, and others. This was mentioned in the HLPE report 7; sustainable fisheries and aquaculture for food security and nutrition. Still, this important provider of animal protein, essential micronutrients, and health promoting fatty acids, are often forgotten when discussing FSN. Therefore it is recommended to further consider fish when discussing both malnutrition and overconsumption. Fish supports only 2% of global energy intake, but 16% of animal protein, and holds several of the micronutrients necessary to avoid sickness. The ocean covers 70% of the earth surface, and has a great potential to increased harvest if done properly, further aquaculture is found to be environmentally friendly, with low emissions, and should therefore be a goal for future climate friendly food production.

42. Lal Manavado, Norway

Towards a Holistic Approach to Address the Global Nutritional Needs

I am happy to see the range and scope of this discussion has made it the very first of its kind to make a truly holistic approach possible. Naturally, its inclusiveness would impart to it a great deal of complexity, but it is this that makes it not only challenging, but also renders it the sole reasonable means of resolving an important issue without further environmental destruction and the severe consequences that entails.

In my comments below, I shall restrict myself to describing the possible generic causes of change in the consumption of food and food systems and how to promote appropriate patterns of eating as well as some means of ensuring the sustainability of environmentally benign food systems. I shall leave their detailed elucidation to other interested parties. My approach will avoid the use of jargon as much as possible while doing everything it can to uphold its epistemological integrity.

My purpose here is to enquire into some possible ways of ensuring our food systems are able to adequately meet the justifiable nutritional needs of the people, sustainable, robust and flexible, I shall rejected at the outset what seems to have been an article of faith with respect to the purpose of food systems, viz., acquisition of profit by meeting the demand for food.

This curious belief might have been justifiable only if there were two categories of people, viz., those who could live without any food and therefore may operate food systems to gain something else they desire, and the others who need food to live. This is patently absurd as intake of food is the sole means of satisfying our cardinal need nutrition,which has logical priority over all others, hence, the justifiability of regarding the operation of food systems as a purely commercial venture becomes problematic.

Before we proceed, it is necessary to develop a set of sound conceptual tools required to deal with the problem. These are needed to link the changes in food systems to the following notions that constitute our frame of reference:

1. The capacity of our food systems to adequately meet our justifiable nutritional needs in a manner equitable to all.

2. Their sustainability.

3. Their robustness.

4. Their flexibility.

A food system is a mechanism people have evolved with the intention of satisfying one of their cardinal needs, viz., nutrition. Therefore, justifiability of its existence, depends on the success with which its use enables us to achieve that objective. We are familiar with the statistics from the FAO, which raises serious doubts about its success. As food systems have changed in step with human socio-cultural evolution, it is reasonable to suggest that some aspects of that evolution may be at least partly responsible for their current insufficiency.

I postulate that irrespective of their complexity, origins of the uneven success of a modern food system can be traced to two generic causes, viz., its appropriateness for the purpose it is intended to serve, and the ability and skill with which it is used. These will be discussed with a view to identifying possible means of enhancing the utility of food systems.

I further postulate that until recently, we have failed to pay sufficient attention to a food system's appropriateness, and the importance of the ability and skill all users of a food system ought to possess.

In the following discussion, I shall examine these in turn, and try to suggest some felicitous changes in them.

Appropriateness of a food system indicates how well its use under a given set of conditions, would enable one to satisfy one's nutritional needs in an adequate and an equitable manner. The possibility of its use enabling one to achieve this objective, depends on the ability and skill with which it is used. Possession of this ability and skill implies that its users have an adequate degree of know-how required for the purpose.

The conditions in which a food system is in use, represents its *operating environment*. Therefore, we will ascertain what constitutes its operating environment with a view to identifying what changes in it would influence the appropriateness of a food system, and then proceed to the ability and skill required for its adequate use.

But before we undertake that task, we need to identify what may be justifiably constitutive of an adequate and equitable satisfaction of one's nutritional needs. I shall avoid the pitfalls of dietary standardisation, and suggest as our objective, enabling one to have physical access to an equitably priced, balanced diet with reference to one's nutritional needs. At the risk of being pompous, we will call it the universal dietary goal.

Thus, our purpose is to bring about an individual dietary change towards a balanced diet. This requires bringing about such changes in a food system that would enable its users achieve that objective in the manner described above. We will begin with a brief look at the generic dietary changes, and then go on to ascertain what changes in a food system would bring about the desired result.

Types of Dietary Change

It is a logical fact that a dietary change is ascertained relative to someone's previous diet. There are two die mentions to a dietary change, viz., a qualitative and a quantitative one. Please note the term qualitative as used here simply refers to the diversity among the victuals consumed. It is necessary, because one cannot always obtain all the nutrients one needs from a single source.

When one's diet is sufficiently diverse to ensure an adequate access to the nutrients one needs, its qualitative aspect approaches a balanced diet. Its quantitative dimension is concerned with ensuring that it contains sufficient amount of each food item to adequately satisfy one's nutritional needs.

Thus, a change in one's diet may represent a qualitative or a quantitative movement away from, or towards one's diet being a balanced one. We already know that more than 2 billion people have no access to a balanced diet for different reasons. For the sake of brevity, I shall not go into the qualitative and quantitative variations possible here.

Our problem then, is how to ensure our food systems are sustainable, robust and flexible as a means that would enable most of the world's population to reach the universal dietary goal. But its individual aspect must take into account human food preferences usually governed by one's food culture.

An important sub-set of one's culture, Food culture is not simply concerned with culinary matters, it embodies the valuable empirical knowledge and skills acquired over a long period of time, that often reveals the crops and sources of animal food best suited to an area relative to its flora, fauna, geographical and climatic conditions. Thus, a change in a food system that enables one to obtain a balanced diet conforming to one's food culture is very desirable.

Moreover, it entails a greater bio-diversity among cultivated food plants and household animals. The desirability of this needs no elaboration. Next, let us look at the structure of a food system, and then its operating environment.

A food system is a man-made tool, used with the intention of satisfying one's nutritional needs. It is axiomatic that the possibility of satisfying a need entails the prior satisfaction of some other needs. For instance, beside digestion and uptake of nutrients, satisfaction of one's nutritional needs depends on ingestion of food, its preparation if necessary, its procurement, etc.

Thus, the possibility of satisfying our nutritional needs depends on the prior satisfaction of a set of needs they subsume. A brief analysis would reveal that those subsumed needs are arrayed in a hierarchical network with multiple ramifications. So, the possibility of satisfying our nutritional needs, depends on our ability to adequately satisfy those needs they subsume.

We can conceive of the means used to satisfy those subsumed needs as discreet systems. Some of them represent natural systems we use, eg. ecosystems, while the others are man-made. Hence, we can distinguish between two generic system types involved in the use of a food system, viz., natural or ecosystems whose operation is gnomic, and others dependent on intentional and goal-directed human action.

Such human action intended to satisfy a need is governed by a set of cultural norms. Its general acceptance is motivated by the belief that

Undertaking it would enable the people to satisfy some need in a way more or less acceptable to them. Its use manifests itself as a social or an institutional practice. Such a practice manifests itself as a system in use.

A system in use may be reflexive, or it may represent an exchange of more or less commensurable values between two parties. For instanced, one may use a vehicle to transport oneself, or to transport someone else in exchange for a suitable reward. This respectively illustrates the reflexive and exchange type use of a simple transport system.

Cultural evolution has proliferated institutional practices in many parts of the world owing to our efforts to improve our means of attaining what we believe to be desirable ends. Our problem now is to identify the essential parts or the core of a food system, so that we could construe the systems that may justifiably constitute its operational environment.

The Anatomy of a Food System

We can envisage a food system as a composite of discreet sub-systems, where each sub-system may have its own complement of sub-systems, and so on. A sub-system of the whole or a part of a food system, may recur in any other appropriate portion of it. At a minimum, two logically inseparable components, viz., a *yielder* and an *end-user* system are constitutive of a food system.

The former is usually a biological system that yields the produce we partake as its end-users. It requires the existence of plants or animals. Their existence depends on the ability of ecosystem services or human help to adequately meet their own biological needs. Those include water, plant nutrients, animal food, etc.

A yielder system may show varying degrees of sophistication. It may be a forest harvested by a simple hunter-gatherer operation, or a huge mechanised farm. Here, wilderness and farm represent two yielder systems. In both cases, sub-systems it subsumes are only concerned with satisfying the

biological needs of a yielder system, which may be collectively conceived of as a *yielder input provider system*.

The end-user system consists of two components, viz., *food procurement* and a *preparation system*, and the latter's output is finally partaken. Procurement of food may range from simple harvesting of nature's productions to obtaining it in exchange for some action or thing of value. A harvesting system may range from plucking a fruit, to the use of a combined harvester.

Preparation system may depend on two sub-systems. The first is concerned with the need to remove what a social group will not consume from the output of a yielder system, and we will call it the *refiner system*. Its use may represent a gutting a fish, husking grain, refining sugar, etc.

The output from a refiner system may become the input of the second sub-system of the preparation system. Its purpose is to turn its input into what is actually partaken by a person. We will call it the *culinary system*. This term as used here includes most of the actions embraced by the term cooking except its preparatory steps like washing the ingredients, trimming away the unusable, boning, skinning, etc., which belongs to the refiner sub-system.

In the course of our social evolution, division of labour was introduced as a means of improving the quality and quantity of our productions, and reducing individual work load. As a direct consequence of this development, agriculture, animal husbandry and fisheries emerged as endeavours requiring specific resources and skills. Continued improvements in those led to an increase in the output of yielder systems.

This increase in food production gave rise to the need to develop some system that would enable the early producer/end-user to make one harvest last until the next. As it is intended to enable one to engage in a sequential use of the output of a yielder system, we will call it a *sequential use enabler system* abbreviate to SUES.

There are three logically distinct problems associated with the sequential use of food. They are, movement of the output of yielder system to where it is to be stored, its safe storage, and finally, ensuring that it remains usable over a period of time. These functions are served by three sub-systems in a SUES. Use of these are not restricted to food systems. Moreover, their deployment in a food system may show a considerable variation in extent.

A *storage system* may represent a farmer's own grain loft, a ham hanging in a kitchen, etc. It may use a packaging system to achieve ease of storage and more convenient subsequent use. Baskets, jars, etc., are examples of this. A *transport system* may range from someone carrying his produce home on his back or a bulk carrier of cereals. It may serve to transport items to and from a variety of systems.

In order to counter the perish ability of food, one resorts to some *preserver system*. Its use may be as simple as drying or salting a fish for personal use or as complex as a large cold storage facility, where a storage system is combined with the preserver system provided by the cooling equipment. It differs from the preparation system in that its output is not intended to be ready to eat.

Meanwhile, the on-going social evolution has further extended the division of labour, which has continued to distance yielder systems and end-users. This development has induced the operators of yielder systems to utilise their output in a new way, viz., to exchange it for something else of equitable value, which a farmer or a fisherman needs, but may not be able to produce himself without excessive difficulty and inconvenience.

It is the convenience and the commensurability of the values exchanged that would justify this use of a yielder system, which the modern food systems are supposed to embody. Possibility of this exchange led to the emergence of a new procurement system, viz., end-user obtaining food in exchange for goods, services or money. However, it is crucial to remember that the purpose of this activity is not just personal enrichment, but equitable mutual benefit.

Continued social evolution and urbanisation have further extended the division of labour resulting in an ever increasing gap between yielder systems and the end-users. This has led to the expansion of the previous exchange mechanism into the modern *selling system*. It is interposed between the yielder system and the end-user and makes extensive use of SUES as well as some other sub-systems described below.

The selling system may be physically substantial or virtual. The former may be a wholesale or a retail system, and may be speculative or non-speculative. The former involves buying food cheap, waiting and selling it dear when scarce. In virtual selling, future harvests are bought cheap to speculate in commodity futures.

A selling system may use an *enticer system* to make its output eye-catching, or to make people believe that it is somehow preferable. A seller system may reflexively run the output of their procurement system through a refiner system using SUES before sale. Eg., cuts of meat, poultry, chopped and frozen vegetables. It may be a wholesale or a retail operation, and may or may not use a enticer system.

Meanwhile, in addition to the convenience it offers, the emerging awareness that partaking of meals could give one a satisfaction different from that experienced on simply meeting one's nutritional needs, has made it possible to operate an end-user system with a view to exchanging its output for profit. Famous restaurants as well as the humbler street kitchens instantiate this merger of an end-user and a selling system.

Lately, this use of end-user system has been industrialised to a great extent in affluent countries. It involves procuring what is needed by the cheapest means, running it through a culinary system, whose output is channelled through a SUES into a seller system as frozen industrial food ready-to-eat after it has been warmed up. The ubiquitous frozen pizza is an unsavoury example of this.

A food system then, may manifest itself as a set of systems consisting of some of those outlined above. Some of them may be run recursively. Apart from enticer, industrialised end-user and modern virtual selling systems, its other sub-systems have been with us since antiquity meeting identical needs, and only how they satisfy them have undergone changes.

Since everyone is aware that one needs food, it is difficult to see how may one justify the inclusion of an enticer system in the core food system without claiming that its intrusion is justified because it is justifiable to profit at the expense of the operators of yielder systems and end-users by claiming to help the latter to satisfy some putative need for information.

Now we can envisage a core food system as a set of sub-systems, where input to a yielder system is our point of departure. Its output serves as the input of some other suitable component system and so on until the end-user procures the final output of the food system. In most cases, input to every sub-system is procured in exchange for money, and the total expense of those exchanges is borne by the end-user.

It is reasonable to maintain that core food system is among the earliest human activities that evolved into an institution. During this process, it made use of various emerging systems, especially those included in SUES.

So, a food system can be seen as one whose sub-systems are distributed in a hierarchical network of other systems.

Therefore, the appropriateness and the adequacy of a food system can be influenced by the systems outside as well as constitutive of it. The former represents its operating environment, while the latter indicates it internal environment. We will begin by considering the external environment of a food system.

What systems are constitutive of a core food system is relative to the level of social evolution of the place where it is in use, or the socio-cultural norms that have diffused into it, or it has grafted onto its own. In all events, socio-cultural norms do not always embody a mechanism to ascertain the possibility of conflict arising among the systems used by a social group, nor yet how to resolve them in a holistic fashion. We may describe the result of this lack of system integration as system incoherence.

Hence, it will be reasonable to suggest that general system incoherence and inadequacies in its users' ability and skill to use a food system are chiefly responsible for the current state of global nutrition. System incoherence will have adverse effects on both gnomic (ecosystems) and the man-made ones.

Meanwhile, when a holistic system integration does not obtain, system incoherence may bring about the following.

1. Non-sustainable use of natural yielder input system (ecosystems services), eg. water, soil nutrients.

2. Non-sustainable introduction of ecosystem service supplements, eg. irrigation, use of fertilisers and pest control.

3. Ad hoc increase of yielder system output by actions that reduces the bio-diversity of food crops and household animals.

4. Failure to control the introduction of more wasteful systems, eg. food waste in transport, storage, catering, and homes.

5. Failure to introduce better systems or system improvement, eg. wastage in food storage.

6. failure to deploy strategically essential sub-systems like cheap transport and storage systems.

7. Failure to control superfluous systems that burden the producers and end-users, eg. food advertising and speculation in commodity futures.

8. Failure to deploy the essential elements of a food system with reference to the actual location its end-users.

9. Failure to allocate the resources a food system requires owing to their inappropriate allocation to other systems.

10. Reduction of ecosystem services a food system needs owing to inappropriate establishment and operation of other systems.

These ten factors imply that we over use yielder input provider system, waste food, and add unnecessary extra cost to the food available to the end-user and deprive those operate yielder systems

fair reward. Moreover, less than optimal deployment of storage and transport facilities will have an adverse effect on the nutrients in most fruits and vegetables by the time they are on sale.

We can identify three distinct sets of man-made systems in the external environment of a food system, viz. that lays down the policy governing the establishment and operation of systems in use, that which is necessary for policy formulation and implementation, and finally, that which ensures that policy is adequately implemented.

Policy is the prerogative of a government, local, regional or national. So, in order to avoid the ten undesirable consequences described above, general policy of a ruling body ought to integrate all its policies including that on agriculture into a unified entity.

Formulation and Implementation of Integrated Government Policy

Regardless of the political level, possibility of integrating the policy on food systems into the general government policy, depends on the political willingness of the government to undertake it, and having the necessary technical competence at its disposal. Although very important, such political willingness is not a given, but I shall confine myself to some technical aspects to be considered in bringing about the desired policy integration.

1. Development of holistic policy integration tools, which will take into account the health, educational, security and cultural implications of food, its passage through a food system, its availability and affordability, etc.

2. Development of a coherent means used to ensure that the integrated policies are implemented and in use. Legal norms and their enforcement are concerned with this.

3. Formulation and implementation of all policies depend on education in its broadest inclusive sense and research. Every policy formulation is based on some current knowledge, including the means of determining whether it is complete and the best available.

4. Scientifically defensible use and supplementation of ecosystem services (vide my comments on FSN forum discussion on ecosystem services).

5. Increasing the available ecosystem services through environmental regeneration.

6. True appreciation of the danger posed by the current human population growth to every living thing including man himself.

7. Enhancement of bio-diversity among cultivars and household animals.

8. Distributed food production, i.e., prevention of the disappearance of small farms owing to economic pressure, and their being absorbed into large agro-industrial units.

9. Active policies to halt urban expansion which increasingly makes it difficult to provide fresh and adequate supplies of appropriate food stuffs to many cities.

10. Action to retain and sustain sources of food as close as possible to population centres.

11. Giving priority to the development of adequate food storage capacity at strategic locations with respect to demand, and expansion of cheaper and environmentally benign water and railway transport of food.

12. Retention of traditional crops and household animals, and their improvement in a way that does not diminish the local bio-diversity.

13. Supervision and control of the composition of food systems in order to ensure that the operators of yielder systems are adequately rewarded, and the end-users receive value for their money; wastage of food during storage, transport, and industrialised refiner and end-user systems, substantial and virtual speculation in food, and advertising are the main causes of an incommensurable exchange of values between the producers and end-users of food.

14. Promotion of the synchronous and adequate performance by the sub-systems justifiably constitutive of a food system to increase the flow of food to lessen its loss due to spoilage.

15. Priority and equity in economic policy such that operators of yielder systems are not deprived of a fair exchange of values, and active protection of their financial interests.

16. Reduction of surplus food production to cut down the excessive use of yielder input provider systems, while implementation of 15 above will compensate the farmers.

17. In view of the current global population, encourage labour intensive agriculture, and discourage its technology intensive counterpart, especially when introduced owing to the desire for short-term gain or prestige.

18. Giving due priority to the energy demands of agriculture, which arises from the use of appropriate technology.

19. Introduction of compulsory standards on industrial food and drink, and the establishment of impartial test laboratories to determine compliance.

20. Agricultural research policy to support bio-diversity and the rational use of ecosystem services, and that on dietary research which would sustain the diversity in food culture.

21. A trade policy that does not adversely affect national agriculture or the availability and affordability of appropriate local diet.

<u>On Policy Implementation</u>

My remarks on the necessity of ensuring a commensurable exchange of values between the agriculturalist and the end-user may prompt some to attribute to me certain political tendencies. A brief look at the average diet of a former Soviet citizen and that of a slum dweller in many a democracy, should be sufficient to convince one that no political dogma has enabled us to attain the universal dietary goal.

Irrespective of its capability, no political system has taken into account the impossibility of using the finite resources of the world ad libitum to meet the justifiable and unjustifiable demands of an ever growing population, and the untenability of believing that scientific progress would enable us to do so without paying a price that would make life not worth living.

I think it is time to ask ourselves a few blunt questions and try to answer them honestly. As financial gain seems to be ingrained in many approaches to the present problem, let us ask ourselves, is it fair that the operators of a top-heavy middleman systems should gain more than those who actually produce food by depriving them of their just gains, and burdening end-users?

Provided that the necessary political willingness obtains, in addition to the requisite legal instruments, implementation of policies that embody the 21 points above, may require the following:

1. Development of know-how to make integrated policy.

2. An ethical and legal debate on the defensibility of regarding food as just another consumer good.

3. Means to undertake and continue comprehensive international environmental research, whose findings would provide crucial guidelines on making agriculture policy.

4. General and formal education that includes understanding the notion of balanced diet, relevance of food culture and our dependence on the environment.

5. An energy efficient and adequate transport system that uses water and railways to a much greater extent for the movement of food and other goods.

6. Establishment of agricultural cooperatives to run distributed food systems.

7. Establishment of banks for agriculture providing easy financial help to farmers, rather than government subsidies, which in the final analysis is using tax-payer's money to pay the former a fair price the middlemen have denied them.

8. Economic research on how much each sub-system operator in a food system gains relative to the food producers, and how much end-users must pay each middleman.

9. Establishment of laboratories to approve or ban the sale of industrial food items.

10. Schools to train people in producer and end-user centred agriculture.

11. Research and funding to take appropriate steps to minimise wastage in food systems and among end-users.

12. Suitable re-settlement of migrants to over-crowded urban centra.

13. Introduction of water conservation by underground rain water storage, covered irrigation canals, etc.

14. Tax benefits to those who produce food in an environmentally benign way.

15. Public education with a view to making youth understand the crucial importance of agriculture and to attract them to engage in food production.

I hope the above far from exhaustive list clearly indicates the line of action envisaged here. As I noted at the outset, each point is open to further study and expansion. I shall now take up the question of users' ability and skill required to use a food system successfully. En passant, let me mention that every operator of its sub-systems and the end-users of a food system are included in this group.

<u>On Users' ability and Skill</u>

In the kind of food system I have advocated, operator of a yielder system will manifest the possession of the required ability and skills by the following:

1. Avoid as much as possible the unsustainable use of ecosystem services and the excessive use of supplementary yielder input provider systems like the use of fertilisers, etc.

2. Attempt to enhance the local ecosystem services by strategic tree planting, hedge planting, apiculture, etc.

3. When involved in harvesting a natural yielder system like fishing, avoid over harvesting, which has become a grave threat to the livelihood of fisher folk in less affluent countries due to over-fishing by affluent ones.

4. Possession of know-how concerning what is best suited to one's location, and the willingness and ability not to subordinate them to reductive considerations related to output divorced from other factors.

5. Engagement in political activities to ensure oneself an equitable gain and refusal to allow the middlemen to reap the reward due to oneself.

6. Agricultural know-how relevant for the purpose.

As for the operators of other systems, we face several problems. Among the most troublesome is the ownership of the sub-systems in use. It is not always clear who uses whose sub-system in a food system. Very often, a seller may resort to quick but expensive transport to beat his rival to a market, which often entails an adverse effect on ecosystem services.

As they are motivated by desire for gain, sellers sometimes resort to some bizarre use of refiner systems. For instance, fish from a country in Scandinavia is now flown to China for processing and packing it, and then returning it by air. The environmental consequences of this advanced practice and its influence on the quality of fish can be easily imagined.

I think SUES and enticer system as a part of seller system requires a thorough impartial scrutiny in order to ascertain their effect on the environment, hence the ecosystem services, quality of food sold, wastage, etc. Even though this is a perfectly reasonable proposal, it is likely that the vested interests would do their utmost to thwart such an enquiry.

I shall limit myself to what end-users must possess to procure the components of a balanced diet, because it is here that they can have a significant effect on the so-called market forces in a way to compel the sellers to meet a real human need rather than an artificially created demand. Provided that one is willing and able to operate the preparation system with sufficient skill, the possibility of an end-user procuring a balanced diet depends on the following:

1. Awareness of what constitutes a balanced diet for oneself and its overall importance for one's well-being.

2. Understanding and an appreciation of environmentally benign agriculture and the food culture of an area.

3. Awareness of the adverse consequences of wasting food.

4. A belief in fair play especially with respect to the actual producers of food, which may motivate one avoid as many intermediaries as possible when one is procuring food.

5. Awareness that what one nutritionally needs and what one's taste may recommend may not coincide, and that if ignored could have undesirable consequences like obesity or deficiency diseases.

6. Awareness that one's taste in food and drink is acquired, hence it can be influenced in different directions by external forces like advertisements, which are not intended to enable one to procure a quality balanced diet.

7. Understanding that neither its high nor its low price will always indicate the quality of the food one purchases, nor yet it reflects fair trade.

The importance of the seven points above in enabling an end-user to be a consumer responsible for the well-being of himself and his fellow men, and our common environment needs no clarification.

The knowledge that enables one to pay attention to them has to be acquired. Thus, attainment of the universal dietary goal requires an appropriate universal end-user education in it its broadest sense.

At this point, one may object by pointing out that the present argument is based on several assumptions that are problematic to say the least. The rest of this discussion will be devoted to dealing with them. The foremost among them will be the wide-spread poverty that will prevent many millions from procuring food even if a food system as outlined here should obtain.

This is quite true, and policy integration with a view to enabling the people to satisfy their fundamental needs has a long way to go even if the political will and the technical competence needed for the task are not a problem. In addition, it is vital to emphasise the necessity of immediate and effective population growth control unless we want hunger to become an insoluble issue.

In the meantime, an integrated policy would strive to reduce internal migration of the poor to urban centres. I strongly urge decision-makers to visit the ever-growing squatter settlements in South and South West Africa, India, Indonesia, and several Latin American cities, etc., etc. Here, we are talking about nearly a billion of unskilled poor, driven by unrealistic expectations generated by reductive government policy, or by 'rogue aid'.

We need to face some less attractive bits of reality if we want to enable as many as possible to procure a balanced meal. Until now, our thinking about the problem is governed by the dubious dictum, people need money to eat, so find gainful employment for them, and then they will not go hungry. All traditional 'development schemes' embody this naïve idea.

This is splendid indeed, if 0.00% unemployment is not a mere fantasy. Social support might offer some limited help, but this is not an option for most non-affluent countries where the incidence of hunger is greatest. Labour-intensive agriculture and prohibition of using food as a mere article of trade whose availability and price is governed by the desire for unlimited gain, may serve to mitigate world's hunger to some extent.

Another kind of objection will underline that during the past 50 or so years, several generations have been 'taught' that 'fast food' and 'industrial food' are not only edible, but consuming them is also a sign of belonging to an advanced social group and sophistication. But, a myth can be unlearned as one may see in EU's very successful pilot project, "We Love Eating."

I will conclude with the greatest objection, those who run the current economic system will do their very best to retain the status quo at any cost. True again, it has never been easy to get people to abandon a primitive system in favour of a more reasonable one. Economic system enables one to make unlimited gain, and financial gain is power.

Those who successfully run economic system gain power more or less bloodlessly, just as their medieval predecessors did employing armed henchmen. Both groups engage in take over battles with equal ferocity bar the blood letting. But, the resource sequestration their activity entails the same deprivation to the others. Thus, we have only replaced the feudalism of force with a little genteel economic feudalism.

Today, we have less resources left, but billions more mouths to feed, bodies to clothe, and care in sickness, and heads to be inculcated with what makes us human. And there is just not enough of the cake to go around when the slice of the cake available for the poor gets smaller and smaller while the number of mouths wanting just a little bite grows greater and greater.

This is primitive indeed. We boast about our superiority over our brutish ancestors whose motto was supposed to be, might is right when it came to everything from eating. Cannot we show our superiority over them neither by competition using brute force or high-priced lawyers, but rather by cooperation for common good as befits civilised people?

It is with profound regret I conclude my comments with this plea, because unless we undertake a radical revision of our current economic system, every other action could only bring a temporary relief to some of the hungry billions. Understanding this makes one less sanguine than one would wish, still, I hope my suggested approach would be of some use.

With best wishes!

Lal Manavado.

43. Gizaw Gebremariam, Institute For Sustainable Development, Ethiopia

The questions and points raised for addressing the issue of food systems and nutrition are quite comprehensive, i apperciate.The points raised are inlined to the consumption side than the producion side.Therefore cocerning Ethiopia,

1/I think is good to stress the problems regarding environment/farm level problems related to soil fertility, soil health,pest control....to adress the root causes.

2/Accessebilty issues related to amount available and popolation issues/carrying capacity

3/influnce of coventional agriculture over the agroecological approach and cosquent changein the food content and effect on health?

4/what about culture including religions and consumption habit?

5/The overall capacities in developing countries/smallhoder farmers TK and is relevance to sustainable production of heathy food.

44. Selina Juul, Stop Wasting Food movement Denmark (Stop Spild Af Mad), Denmark

There needs to me bigger focus and a guide for the portion sizes.

This piede is co-written with Jonathan Bloom, my fellow food waste fighter, author of the award-winning book "American Wasteland" and the creator of the Wasted Food site. Since Jonathan and I joined panel appearance at the Scanpack conference on food waste in Sweden last fall, we agreed to put a focus on these portion sizes.

Is bigger always better? The people running most cafés, restaurants and supermarkets seem to think so, serving or selling larger portions of food. This trend and portion sizes keep growing in the United States and Europe. As a result, we often receive massive amount of food when we eat out.

Can we really eat all of that food? Should we? Do we just end up feeding landfills? Or worse still, are we turning our bodies into garbage bins?

And so, when it comes to portion sizes -- and plenty of other things -- bigger is not in fact better. *Better is better.* Better tends to look like food raised in a way that's more sustainable for both people and planet.

The restaurant market is a competitive place. Few restaurants are able to lower prices and stay in business. But, in an effort to win over customers, many restaurants have increased portion sizes. And while European eateries are increasing their portions slowly, they still lag behind American ones. What pass for dinner plates at some American restaurants would feel like serving platters in Europe.

Meanwhile, household refrigerators in the US look like commercial ones in Europe. Filling up those massive refrigerators means buying more food, despite household size shrinking in the last five years. Shopping carts in supermarkets have grown 20% in the last 20 years. And most of shopping baskets are on wheels today so they are easier to roll after you buy food that you actually don't need. The Super Packs, Mega Packs and quantity discounts are useful, if you end up using all the food, but mostly it's yet another food waste trap.

With that in mind, here are five tips that you can use to minimize food waste in your life:

Plan wisely before cooking. Most adults eat around 750 grams (1.65 pounds) of food per meal, including bread. When we cook at home, we tend to make much more food than people can actually eat because we fear not having enough food for the family or guests. To avoid cooking too much food, always cook 30% less than you usually do, it will target just the right amount of food for your guests.

Use smaller plates and dishes. A Danish survey shows that if the plate size is reduced by just 9%, the food waste can be reduced by over 25%. Further justification for smaller plates: American researcher Brian Wansink found that we don't even notice when we eat portions that are 20% smaller. Meanwhile, we tend to like our plates to be fairly full. By reducing the size of the plate, you ensure that you don't overfeed yourself or the trash bin.

Choose smaller shopping carts and shopping baskets. In the supermarket, make sure to choose smaller shopping cars when possible to avoid buying too much. If the shopping basket is on wheels, it may make sense to still carry it by hand. The bigger the shopping cart and shopping basket is, the more you will be tempted to fill it up with food that you actually don't need. The same holds true with your refrigerator, but that is harder to change!

Ask yourself if you really need those Mega Packs and bulk discounts. If you have a large family or are hosting a large gathering, they may make sense. Otherwise, it might not be the best idea. And all of that money saved from buying in bulk disappears when you don't eat a significant amount of those foods.

Order the right amount for you. Oftentimes in a café or restaurant, we cannot predict how much food will arrive. Thus, it's a good idea to ask the waiter about the portion sizes. If the amount seems like more than you can or want to eat, it may make sense to share it, or order two starters. And asking for a doggy bag for those good leftovers is always the smart solution to restaurant excess.

45. Angelina Balz, Federal Ministry of Food and Agriculture, Germany

German comments to e-consultation of HLPE on "Nutrition and Food Systems"

An adequate nutrition is the basis for achieving a sustainable development and in this regard reaching the Sustainable Development Goals (SDG). Looking on the interlinked problems of hunger and

malnutrition in all its forms, properly designed food systems can contribute to solve these issues holistically by providing the basis for healthy sustainable diets.

From our perspective it needs especially trans- and interdisciplinary research and a forum where all stakeholders come together for implementing the recommendations of the Second International Conference on Nutrition. Therefore we call for a revitalization of the **United Nations Standing Committee on Nutrition**. It should provide coherent strategic and technical guidance on nutrition and should serve as a repository and exchange platform for knowledge on nutrition (i.a. through its Annual Sessions and Working Groups).

The HLPE report would add value to our current evidence-base if it is action- and solution oriented and focuses on the question:

How can the healthy choice become the easy choice everywhere?

It should describe key factors of agri-food systems that contribute to the improvement of the nutritional status and health of a population in the long term by improving the underlying determinants of adequate nutrition. In particular the availability, affordability and consumption of food that meets people's nutrition needs should be increased. How can we achieve this? At the same time, according to the 'do-no-harm-principle' of the right to food unintended negative nutritional consequences on health and care along the value chain should be minimized (e.g. raising prevalence of malaria through irrigation systems; reduction in women´s time available for child care). The objective should be to eradicate all forms of malnutrition and to achieve in the end healthy sustainable diets.

In our view, four key elements should be considered by the HLPE report to enable people to achieve an adequate nutrition:

• Diversification

• Processing (Supply chains)

• Women Empowerment

• Nutrition Education

Beside staples like rice, maize and wheat, an adequate nutrition also needs vegetables, fruit, legumes, oils and animal-based foods. What science-based approaches exist for increasing diversification both in what is produced and in what is actually consumed? Moreover, food should be convenient to prepare and have a long shelf life without losing its nutritional value. What challenges arise from these requirements in respect of processing, supply chains and preparation? How can we ensure that food is nutritionally beneficial, safe and affordable, whether consumers are eating at home or out of home? What impact does the increasing level of urbanisation have on the key elements to enable people to achieve an adequate nutrition? (see also: GFFA 2016: How to feed our cities? - Agriculture and rural areas in an era of urbanisation http://www.gffa-berlin.de/en)

To make food systems work for nutrition, empowerment of women as well as knowledge about nutrition within the whole food system are key cross-cutting factors. Women account for the majority of the agricultural workforce in developing countries and emerging economies. They are also responsible for the nutrition of children and families. They have to contend with a very high workload

and their own nutrition is often neglected. What possibilities exist to strengthen women in their roles and thus ensure better nutrition for everybody?

Nutritional knowledge and skills regarding existing foods, their production, storage, processing and preparation are essential for achieving an adequate nutrition. This is true for any actor within the whole food system. What form must nutrition education take to ensure that the knowledge acquired is put into practice?

Improving nutrition requires a holistic approach taking into account multiple sectors and all relevant actors in this field to design cross-sectoral policies and programs. How can these look like? To answer this question, HLPE should include case studies. Moreover on the global level **a revitalization of the United Nations Standing Committee on Nutrition** is crucial to have a permanent mechanism for guiding toward a world without malnutrition in all its forms.

Important work has already been done and should be considered by the HLPE, e.g.:

• UNSCN News 2013 “Changing food systems for better nutrition”,

• UNSCN Policy Briefs e.g. “Investments for a Healthy Food System”;

• “Key recommendations on improving nutrition through agriculture and food systems” of FAO http://www.fao.org/documents/card/en/c/74018245-8bc9-4932-97ab-14fe8e9b496c

• “Designing Nutrition-Sensitive Agriculture Investments: Checklist and guidance for programme formulation” of FAO

• “Programme Lessons for Integrating Nutrition Education and Agriculture for Improved Young Child Feeding” of FAO

• Worldbank 2013 “Improving nutrition through multisectoral approaches. Agriculture and Rural Development https://openknowledge.worldbank.org/bitstream/handle/10986/16953/751030BRI0Impr00Box374299B00PUBLIC0.pdf?sequence=1

• IFPRI 2012 “Reshaping agriculture for nutrition and health” Fan S, Pandya-Lorch R, editors. International Food Policy Research Institute, Washington, DC. http://ebrary.ifpri.org/cdm/singleitem/collection/p15738coll2/id/126825/rec/1

• Global Forum for Food and Agriculture (GFFA) 2016: "How to feed our cities? - Agriculture and rural areas in an era of urbanisation" Communiqué 8th Berlin Agriculture Ministers´ Summit 2016, 16 January 2016. http://www.gffaberlin.de/en

We also want to use the opportunity to announce the twelfth conference "Policies against Hunger" of the German Federal Ministry of Food and Agriculture which will take place at the Federal Foreign Office in Berlin from 22 to 24 June 2016 under the heading: **Sowing the seeds for nutrition: What food systems do we need?** https://www.policies-against-hunger.de/3/

46. Barry Cohen, National Algae Association, USA

The National Algae Association is the first non-profit algae education and production trade association in the world established over 10 years ago. We are made up of commercially-minded algae researchers, algae producers and equipment companies. We started the algae production industry

from scratch after $2.5 billion spent on algae research at universities over the past 70 years. Your questions do not address food security or the existing published information on nutrition.

We have been writing the FAO about totally ending malnutrition in the world growing high protein sprirulina farms for food. We are also using algae for various feed supplements. Algae farms could be built on non-arable land recycling over 85% of all water used. We train algae farmers through our education programs how to grow algae and become self-sustainable.

Algae farms could have been built ten years ago using all existing technologies but the FAO has chosen to continue asking for more information and writing more reports without looking for permanent solutions.

For the last 10 years we have watched the FAO call for information and generating new reports but not fixing the malnutrition problem. As mentioned for the last 10 years when FAO wants to fix the malnutrition problem and create new jobs in third world countries we stand ready to assist. But providing more information and more information for FAO to write more reports is not a good use of FAO's time.

Just our opinion.

47. Max Julio, Maguiña Maza, Peru

Agradezco al Equipo HLPE por el interés de conocer las realidades alimentarias de los diferentes paises y ver las soluciones.

Existen muchas formas de alimentación o nutrición y teorías desarrolladas sobre el respecto, que probablemente pocos lo conozcan; en el caso del Perú es un país muy rico en alimentos y nutrientes, hablando en forma global del país, pero sin embargo estas riquezas alimentarias están mal distribuidas, existiendo poblaciones con hipernutrición y poblaciones que se encuentran con subnutrición, al punto de tener desnutrición crónica infantil (DCI) aproximadamente de 500 mil niños y lo peor de todo el estado peruano pretende reducir y eliminar la DCI tan solo con repotenciar la agricultura, olvidándose completamente que cuenta con una riqueza marina que solo le supera el país de China; el recurso anchoveta peruana está simplemente para pescarlo y llevarlo a las zonas de desnutrición, porque se puede consumir como cualquier otra especie de pescado; solo por su tamaño es más trabajoso en la limpieza; pero si no se puede transportar fresco, se puede procesar de diversas maneras obteniendo diferentes sub productos o productos terminados como: congelados, curados, enlatados, etc.

El tema de la alimentación en el Perú es ver nuestros macronutrientes y distribuirlos, priorizando al país hasta eliminar la desnutrición y luego exportar para generar divisas, pero no al revés.

El problema que radica entre los peruanos es la discriminación donde solo la gente con dinero puede consumir lo mejor y los alimentos de primera y lo que queda es para mercado nacional; así estén los precios por igual (mercado interno y externo), pero priorizan lo mejor para la exportación, esto no significa que se debe exportar la de baja calidad, lo que quiero decir es buscar la igualdad sin discriminación, buscando siempre la mejora de la producción para tener productos estándares y no estar en estas situaciones.

En el presente trabajo nos centraremos en encontrar el equilibrio del uso racional y sostenible de la anchoveta para consumo humano directo (CHD) y consumo humano indirecto (CHI) en el Perú; pero aunque por justicia todo este recurso debería de ser destinado para CHD; quiera Dios que en un futuro

muy cercano sea así ya que es un recurso mejor diseñado para la nutrición humana y lamentablemente pocos lo vemos de esta manera.

El Perú captura aproximadamente 5 millones de toneladas por año, con un consumo per cápita de 30 kg, se puede alimentar a más de 160 millones de habitantes, pero lamentablemente ni los peruanos conocemos del potencial de este recurso, más por su riqueza nutricional.

Este recurso es útil desde el embarazo, etapa de la lactancia, para los niños en crecimiento y adultos mayores por su contenido en ácidos grasos poliinsaturados (omega 3) que posee; al ser conservados adecuadamente se puede trasladar a cualquier parte del mundo.

Pero la pregunta es, si conocemos todas estas bondades de este recurso ¿por qué no se prioriza para CHD?, es que detrás de todo esto hay poderosos intereses económicos que simplemente quieren enriquecerse sin importar el resto.

Que Dios bendiga a toda la humanidad.

48. Sarah Tanvir, Master of Public Health Doctor

Food industry is affected by multiple factors, including climate, goverment policies, political stability and reasons, social changes, trade and agriculture policies, trasportation, education.

The pathway to healthy nutrition is by educating people what is good for their body and what is harmful. Health education is the key to healthy diet. It can be done by various ways of using print, electronic and social media to spread awareness.

Public policy has main role in promoting healthy food for all.

The actionable solution from farm to fork are good governance , good goverment policies for agriculture and trade , mitigation of climate changes like ensuring water supply , prevention of floods by building dams , ensuring better transportation, educating the farmers about agriculure practices and healthy food, introducing health lifestyle in people.

All the stakeholders shall collaborate for a unified cause to bring better results.

49. Charmaine Gallagher, New Zealand

Solutions from farm to fork to enable better nutritional outcomes

Specifically Aquaculture and Fisheries

- Necessary to ensure affordable accessiblility to locally produced seafood. Responsibility of RFMOs, producers and licenced fish recievers certainly. Encouragement of high protein highly productive local species that are not all bound for export.
- Affordability and understanding of feed sources for aquaculture species and necessary protection of habitat, water catchments and prey species in a trophic network.
- Transparency of aquatic food sources
- Encouragement of home based, community based and regional options for production of aquatic species for consumption.

- Land, river, estuary, coastal and ocean provisions to encourage aquatic food production to a carrying capacity in concert with natuaral ecosystem functions.
- Polyculture, algal production and bioremediation systems support.

50. Jiwan Prava Lama, Acting Secretary, Office of the Prime Minister and Council Minister, Nepal

The High Level Panel of Experts on Food Security and Nutrition (*HLPE*) Reports On:

I would like to thank the HPLE steering committee for choosing pertinent issues and providing this opportunity for comment.

There has been tremendous increase in our population in the last twenty years. The grains of "Grain Resolution" have been nullified in the process. The per capita availability of food has decreased in this period. There is an urgently need t o conserve foods produced by reducing post harvest losses to desire maximum benefit from healthy produced.

Foods are complex mixture of many chemical compounds; i.e. Nutrients which varies with the growth, maturation, harvesting, slaughtering, storage and handling. Food system right from the production and consumption (from farm to fork) is also complex system. Attention should be required to prevent food from deterioration and to keep wholesome until consumption.

Food production is also very much a part of the culture of the region. Each region has its own method of blending flavor to bring about acceptable combination

1. **How and why do diets change?**

Diet changes are depends on many factors: Purchasing capacity, physical stages (Pregnant/Lactating/ dietary restriction), lifestyle and urbanization, availability on the market, product diversification, cultural influence, festival foods, industrialization and change in consumer's choice

Another reason is people get ill due to the consequences of nutritional deficiencies problems, their diet is modified and changed from normal diets qualitatively as well as quantitatively to meet their nutritional requirements.

2. **What are the link between diets, consumptions and consumer habits and food system?**

There is a very close relation and link between diets consumption and habit as these all are associated factors of malnutrition. Food consumption broadly link with tradition and inherent culture. There are so many positive and negative impact of our socio-culture in the behavior of dietary pattern and these components reflect nutritional status of a people in a community. For example some ethnics group is Non vegan where as some are strict vegetarian etc...

3. **How do changes in food system affect changes of diets and therefore health and nutritional outcomes?**

Actually Food system is very broad addressing farm to fork approach. Even a component from chain alters; whole system will get affected and results to threat in quality. A Change affects entire system such as productivity, availability, affordability and accessibility to consumer level.

4. **What are the determinants of the change in consumption?**

There are so many determinants such as economic status, degree of awareness, health status of people in a community, family size, tradition and culture, gender discrimination, productivity, land use and fertility and so on entirely affects and carries change in food consumption.

5. **How do the dynamics of food system drive consumption patterns?**

Food dynamics highlights research on the analysis, organization, management, operation, and strategic development of the food system and its actors and dependents (enterprises, chains, networks, institutions, policy, and consumers). Every food has its own path from farm to industrial level or pre to post harvest level. Food dynamics is a continuous improvement process in food chain that supports availability and accessibility of food so that every stage of people from infants to old including pregnant and lactating woman would get sufficient health food. Challenges of social, economic and environmental sustainability in a Nepal of increasing instability and decreasing production base challenge the system's ability to serving consumers on a global scale with food that is readily available, affordable and of the quality, safety, and diversity they do expect. This requires new dynamics in the system, innovative developments, and research that provide the necessary support.

6. **How to shape and to address pathways to healthy nutrition?**

Food pathway should be shaped basically in accordance with food pyramid and RDA but there are many dimensions to judge and measure consumption patterns such as physical, emotional, social, spiritual, and occupational, intellectual that would determines and recognize healthy living.

7. **What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?**

Role of public policy reflects vision of Government's plan and future strategy. Tradition, custom, and belief are often responsible for public policy. Public policy is designed even to address marginalized people thoughts and sights which provides an opportunity to know and access what people exactly eat.

8. **How to build on the diversity of the existing food system?**

Diversification of food system is not possible unless integration of stakeholders is covered. Farmers, processors, retailers, consumers, Governmental body and other stake holders are major components for research and diversification of food from farm to industrial level. These all groups should have a common goal of Food safety and nutrition security to address good nutritional status.

9. **What is the practice the range of actionable solutions from farm to fork that enables better nutritional outcomes of food systems?**

The practice of actionable solutions can be the following-

Food safety approach

Quality Control approach along with systematic tools GMP /HACCP

Validity and auditing approach from authorized body

Promotional awareness program thorough Information, education and communication

Intra and inter relation build up to coordinate Governmental and Non governmental bodies

Advocacy from all stake holders in the favor of Food safety and security

10. What action should different stakeholders, including governments, civil society and the private sector take?

There should be check and balance action oriented mechanisms among different stake holders. Monitoring, awareness, training and regulation to Food Business operators from Government site is vital where as civil society should play important role to complement Governmental plans and policies. Private sector, Governmental body and public partnership must be three eyes to acquired common goal of food and nutrition security.

Thank You

51. Gulnara Kurmanova, Federation of organic development "Bio-KG", Kyrgyzstan

Federation of organic development «Bio-KG», Kyrgyzstan, promote the agriculture, sensitive to nutrition, since 2012. We support a list of issues that HLPE report will be addressed, as well as the proposals made by our colleagues from different countries. Particularly important we consider conducting qualitative research and assessments using participatory approach. This kind of studies will be a reliable source of facts in order to understand people's situation and decide what should be done. Currently, nutrition researches in Kyrgyzstan are fragmentary. It is difficult to understand the whole scene and identify priorities on the basis of these studies. Voices of the inhabitants of remote mountain villages, poor people, people with certain medical conditions are almost inaudible. Based on our experience in cooperation with the residents of the mountain villages, we believe that special attention should be paid:

- on the cultural specificity of the diets, the description of traditional diets and changes that occur in the power of traditional communities nowadays;
- the extensive mythology, spontaneously formed around diets, and uncontrolled flow of inadequate, incomplete and false information on nutrition;
- the social stratification of consumers and the selection of particularly vulnerable groups, which must be addressed first by efforts to improve access to healthy food;
- to the context, which includes access to other options of a healthy lifestyle, such as healthy movement, a roof over people's heads, distress level, and so on.
- the relationship between food safety and stability of fragile agro eco-systems;
- political, economic and legal aspects of the formation of a "product package" caused by intense cross-border trade and its impact on local producers (in particular for the poorest countries, with more economically developed neighbors);
- the analysis of the effectiveness of existing civil, governmental and international initiatives in the field of nutrition, their coordination and transparency.

52. Pratima Jasti, International Dairy Federation, Belgium

IDF would like to thank the HPLE Steering Committee for providing this opportunity to comment. Please find below some comments and suggestions for consideration in the report.

The overarching issue in this report shall be to assess the influence of various types of food systems on diets, nutrition and health.

This is indeed a very interesting topic. It is well known that food and eating environments are likely to contribute to the increasing epidemic of obesity and several other chronic diseases, over and above individual factors such as knowledge, skills, and motivation. In many countries, environmental and policy interventions may be one of the most effective strategies for creating an influence on eating patterns. Therefore the current report could encompass an ecological framework for conceptualizing various food environments and conditions currently existing in countries across the globe, which influence food choices. Important issues for consideration would be access to food among low- income and minority groups.

When considering the ecological framework, we would like to suggest the following:

- Study the eating behavior among vulnerable groups. Eating behavior as such is highly complex and is influenced by multiple factors in different scenarios. An ecological approach would be useful to guide research and intervention efforts related to eating behavior because of the emphasis on multilevel linkages, the relationships among the multiple factors that impact health and nutrition, and the focus on the connections between people and their environments (Story et al. 2008).
- Individual-level factors related to food choices and eating behaviors include cognitions, behaviors, and biological and demographic factors.
- Macro level environmental factors within the larger society such as food marketing, social norms, food production and distribution systems, agriculture policies, and economic price structures.

Malnutrition is a global issue. The nutrition focus shall include malnutrition in all its forms, including under nutrition, over nutrition and micro nutrient deficiencies.

- Here we would like to emphasise to focus on stunting and wasting as other organizations like WHO are already addressing obesity issues.
- Consider key determinants, factors and components of a sustainable diet (FAO, 2015)

§ Well-being, health : disease burden of population, consumption/eating patterns, lifestyle patterns

§ Food and nutrient needs, food security, accessibility: quantities of foods consumed and produced, amount of nutrients consumed, quality of the diet (in terms of calories consumed, sugars, sodium intake, saturated fats, vitamins, minerals, fibre)

§ Cultural, heritage factors: diverse diets, giving examples such as Mediterranean diet, Traditional menus, knowledge, attitudes, beliefs and practices of various population groups, consumer education and vegetarian eating patterns.

§ Eco-friendly local seasoned foods: water used for irrigation, diversity of crops in various regions

§ Biodiversity, climate change: ecosystems in countries, marketing of foods

§ Globalisation and trade : evaluate food purchasing capacity among different income level groups, role of stakeholders (agriculture producers, processors, consumers etc)

The above points would cover some of the issues highlighted by the HLPE Steering Committee as mentioned in the Issues note.

References

M Story, KM Kaphingst, R Robinson-O'Brien and K Glanz (2008) Creating Healthy Food and Eating Environments: Policy and Environmental Approaches. Annual Review of Public Health. Vol. 29: 253-272.

FAO Report (2015). The State of Food Insecurity in the World 2015. 1-62. http://www.fao.org/3/a-i4646e.pdf

53. Louise Codling, World Cancer Research Fund International and NCD Alliance, USA

World Cancer Research Fund International and the NCD Alliance support the High Level Panel of Experts Steering Committee decision to examine the links between nutrition and food systems in the context of implementing the Sustainable Development Goals (SDGs) and commitments made at the Second International Conference on Nutrition (ICN2). Different types of food systems exist around the world with varying impacts on diets, nutrition and health. Food systems are complex and involve economic, social and environmental dimensions, making it necessary to take a multidisciplinary approach to understand how food systems impact nutrition and how they can be leveraged to end malnutrition in all its forms worldwide.

Our comments will primarily focus on the overweight and obesity side of the malnutrition spectrum, simply because this is our area of expertise.

About World Cancer Research Fund International

World Cancer Research Fund International leads and unifies a network of cancer prevention charities with a global reach. We are the world's leading authority on cancer prevention research related to diet, nutrition, weight and physical activity. We work collaboratively with organisations around the world to encourage and enable governments and policymakers to adopt and implement effective policy actions to promote healthy diets, reduce obesity and prevent cancer and other non-communicable diseases (NCDs).

World Cancer Research Fund International's landmark *Second Expert Report: Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective*1 (2007) provides a systematic review and assessment of the worldwide body of evidence on food, nutrition, physical activity and 17 cancers and cancer survivors. The report is the most comprehensive analysis ever published on the links between food, nutrition, physical activity and cancer prevention.

1 http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup/second-expert-report

Since the launch of the Second Expert Report, World Cancer Research Fund International has continued to collate the findings from all new cancer prevention research published around the world for our *Continuous Update Project2* (CUP). The CUP analyses the findings of cancer prevention research, using the same rigorous methodology of the Second Expert Report to ensure that our Cancer Prevention Recommendations3 remain based on up-to-date evidence.

More information about World Cancer Research Fund International can be found at www.wcrf.org

About the NCD Alliance

Founded in 2009 and led by seven international NGO federations – Alzheimer's Disease International, the Framework Convention Alliance, the International Diabetes Federation, the International Union Against Tuberculosis and Lung Disease, Management Sciences for Health, the Union for International Cancer Control, and the World Heart Federation – the NCD Alliance is a unique civil society network working towards a world free from preventable suffering, disability and death caused by non-communicable diseases (NCDs).

With a global network of more than 2,000 organisations in 170 countries and strategic relations with the World Health Organization, relevant UN agencies, and governments, the NCD Alliance works to meaningfully integrate NCDs into global and national health and development plans and frameworks. Our network includes global and national NGOs, scientific and professional associations, academic and research institutions, private sector entities and dedicated individuals.

The NCD Alliance's activities aim to strengthen policy, increase accountability and mobilize resources to ensure the achievement of global and national NCD commitments, broker knowledge and good practice, and support capacity development of national and regional NCD civil society organisations and alliances. Our achievements include supporting the adoption of landmark political commitments on NCDs – including the 2011 UN Political Declaration on NCDs, the global 2025 NCD targets, the 2014 Outcome Document of the UN High-Level Review on NCDs, as well as the adoption of a standalone NCD target as part of the new Sustainable Development Goals.

More information about the NCD Alliance can be found at www.ncdalliance.org

We will provide comments on the following issues identified in the Issues Note on Nutrition and Food Systems

1. How and why do diets change?

Urbanisation, industrialisation and migration

1.1 Changes in urbanisation, industrialisation and migration rates have influenced patterns of production, consumption of food and patterns of disease and population health, initially in Europe,

2 http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup

3 http://www.wcrf.org/int/research-we-fund/our-cancer-prevention-recommendations

North America and other economically advanced economies, but now also at an accelerated rate in low and middle income countries (LMICs).4

1.2 The migration of populations, alongside urbanisation and industrialisation play a large part in how and why diets have changed; moving from a 'gatherer-hunter' food system (with diets high in dietary fibre and low in sugar) to a 'peasant-agricultural' food system (with diets low in dietary fibre but high in cereals, complemented by animal protein) to an 'urban-industrial' food system (with diets low in dietary fibre and starchy staple foods, but high in processed foods, salt, sugar and fats).

1.3 The 'urban-industrial' food system has distinct characteristics, whose original purpose was to ensure reliable and adequate supplies of food of an agreed minimum nutritional quality. Technological advances resulted in new food-preservation techniques, including bottling, canning, refrigeration and packaging, as well as an extensive use of sugar and salt. However, these advances and the policies and processes of globalisation have significant impacts on the types of food that are available and affordable.5

Nutrition transition

1.4 These substantial changes to our food system are referred to as the 'nutrition transition', where proportionally our dietary energy is increasingly coming from animal sources, fats, oils and added sugars. During the last several decades, these demographic, nutritional and epidemiological transitions have also taken place outside of high-income countries due to economic globalisation. For example, in most LMICs, sales of sugar-sweetened beverages in daily calories per person are increasing6, and the cost of fresh fruit and vegetables is rising while processed foods are getting cheaper7.

Globalisation

1.5 The processes and policies of globalisation have played a big role in the type of food that is available and affordable, encouraging trade and foreign direct investments that favour transnational corporations (TNCs), including food and beverage companies. TNCs greatly influence the sale and consumption of unhealthy, processed foods, driving a shift in dietary patterns that is closely linked to

4 World Cancer Research Fund / American Institute for Cancer Research. Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective. Washington DC: AICR, 2007.

5 Hawkes, C, et al, 'Linking agricultural policies with obesity and non-communicable diseases: a new perspective for a globalising world', quoted in *Report by the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health: Unhealthy foods, non-communicable diseases and the right to health* (A/HRC/26/31 2014, p.6)

6 Hawkes, C and Popkin, B. 2016. Sweetening of the global diet, particular beverages: patterns, trends and policy responses *The Lancet Diabetes and Endocrinology* 4(2): 174-186.

7 Wiggins, S et al. 2015. The rising cost of a healthy diet. Overseas Development Institute

the increase in non-communicable diseases (NCDs), including cancer, cardiovascular disease and diabetes.8

1.6 In 2007, global average available energy was predicted to rise from around 2800 kcal/person per day (1997-1999 average) to 3050 in 2030. As a result of the nutrition transition, people have generally become taller and heavier, accompanied by a change in the patterns of disease at the population level.

2. How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

2.1 Evidence suggests that the 'urban-industrial' food system initially may have lowered the rates of nutritional deficiencies and infectious diseases, especially in early life, in LMICs. However, globally rates of childhood overweight, obesity and type 2 diabetes have become common, even reaching epidemic proportions. We are now experiencing a 'multiple burden of malnutrition', where stunting, wasting, micronutrient deficiencies and overweight & obesity co-exist, affecting individuals, families and entire populations.

2.2 Compelling evidence from studies of migrant populations suggests that the main causes of cancer are due to environmental factors, rather than genetic inheritance. Population movements from LMICs to high-income countries showed accompanying marked changes in the patterns of diet and disease, within one to two generations. The conclusion reached is that genetic pools of migrating populations do not change within one to two generations, but environmental exposure can and does alter patterns of DNA damage and gene expression.

2.3 NCDs, including cancer, cardiovascular disease, diabetes, and respiratory disease make the largest contribution to mortality both globally and in the majority of LMICs. Worldwide, NCDs account for 60% (38 million) of global deaths. The largest burden – almost three quarters of NCD deaths (28 million) and 82% of the 16 million premature deaths - occur in LMICs, making NCDs a major cause of poverty and an urgent development issue9. NCDs will be the leading global cause of disability by 2030. Globally, the NCD burden will increase by 17% in the next ten years, and in the African region by 27%. The highest absolute number of deaths will be in the Western Pacific and South-East Asia regions.10

8 Hawkes, C, 'Uneven dietary development: Linking the policies and processes of globalisation with the nutrition transition, obesity and diet-related chronic diseases', quoted in *Report by the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health: Unhealthy foods, non-communicable diseases and the right to health* (A/HRC/26/31 2014, p. 5)

9 WHO Global Status Report on non-communicable diseases 2014

10 NCD Alliance: http://www.ncdalliance.org/globalepidemic

3. What are the determinants of the changes in consumption?

3.1 Changes in consumption are inextricably linked to changes in diet (see question one). Dietary diversity is key for good nutrition and tends to increase following a rise in income. However this is often then followed by the addition of more processed food and food items that tend to be high in fats, salt and sugar, leading to poorer health outcomes (described in question two).

3.2 Three main domains influence food consumption: the food environment, food system and behaviour change communication. These domains are outlined in World Cancer Research Fund International's NOURISHING framework11 (Figure 1), which identifies ten policy areas that are needed to promote healthier diets and reduce obesity and NCDs. Implementing policies across these areas influences the availability, accessibility, affordability, acceptability and awareness of nutritious foods.

Food preferences, food preparation time, urbanisation and household income

3.3 Other factors that influence consumption include food preferences, food preparation time, urbanisation, and household income. Food and taste preferences are shaped early in life and can track into adulthood. Policies can help shape healthy food preferences through four key mechanisms: providing an enabling environment for healthy preference learning; overcoming barriers to the expression of healthy preferences in these environments; encouraging people to reassess unhealthy preferences; and stimulating a positive foods systems response.12

3.4 Food preparation time and convenience are increasingly factors that affect food consumption, especially populations in urban areas. Decreased time (or perceived time) for food preparation, diminishing food preparation skills, and a drive for convenience have contributed to diets higher in processed foods that are more energy-dense.

3.5 Urbanisation influences the availability of foods by increasing the diversity of what's available, but also increases the availability of out-of-home venues, which tend to serve less healthy food.

3.6 Household income remains a main driver of food consumption across contexts and influences the quality of the diet depending on the food system.

Climate change

3.7 Climate change also influences people's food consumption by influencing food availability (local and global), quality and access (e.g. price). Seasonal variation and climate shocks also impact food and nutrition security.

11 http://www.wcrf.org/int/policy/our-policy-work/our-policy-framework-promote-healthy-diets-reduce-obesity

12 Hawkes C, et al. 2015. Smart food policies for obesity prevention. *The Lancet* 385(9985): 2410-2421

4. What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

4.1 Public policy is central to the promotion of healthy, nutritious and culturally appropriate foods for all and is a form of government action that includes legislation, regulation, decrees, standards, policies, programmes and fiscal measures. The vast majority of policy actions developed and implemented to promote healthier diets have been in high-income countries.

Creating an enabling environment for effective policy action

4.2 Government is the primary duty bearer in developing and implementing policy. To help ensure a more enabling environment for effective policy action to improve nutrition, many steps can be taken by both governments and UN agencies as outlined in the ICN2 Framework for Action13 and the 2015 Global Nutrition Report14:

- Improve governance and political economy, including strengthening and establishing multi-sectoral mechanisms for nutrition
- Enhance capacity and resources
- Provide evidence to support action in a format accessible to policymakers
- Frame issues in a compelling way
- Enhance political commitment
- Align policies across ministries and agencies
- Promote inter-country collaboration and information exchange

SMART political commitments

4.3 Governments have made commitments to improve nutrition through existing global frameworks including the nine global NCD targets and the WHO NCD Global Action Plan 2013-2020, the WHO Global Monitoring Framework on Maternal, Infant and Young Child Nutrition and Agenda 2030 for Sustainable Development, as well as the ICN2 outcome documents: Rome Declaration and Framework for Action. It is imperative that these commitments translate into national action in order to make progress in addressing malnutrition in all its forms. To date, progress has been uneven and insufficient bringing into question the feasibility of meeting established global targets. Governments need to set and implement national level targets and SMART (Specific, Measurable, Attainable, Relevant, Time-bound) political and financial commitments and receive support from UN agencies to do so.

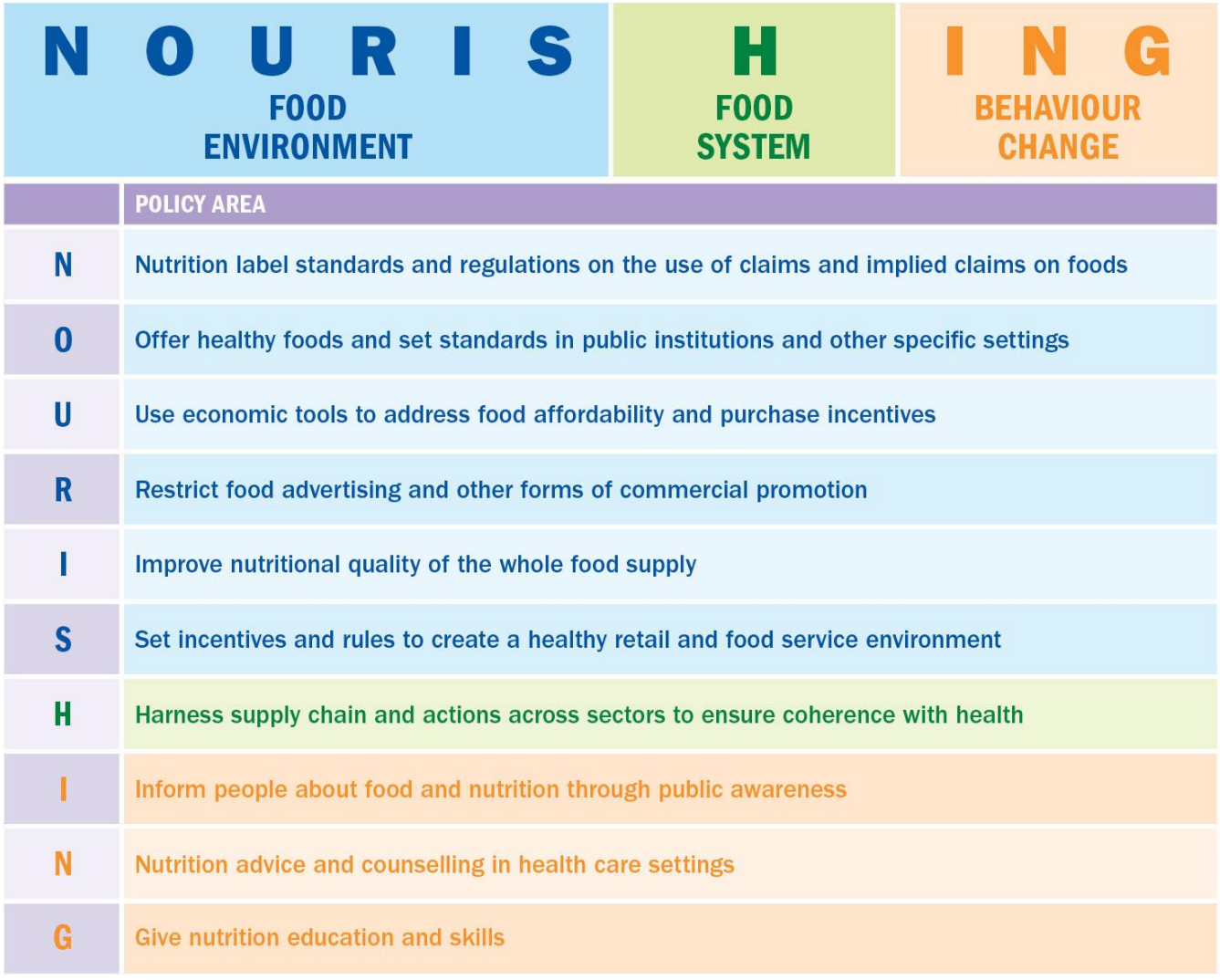
13 http://www.fao.org/3/a-mm215e.pdf

14 http://globalnutritionreport.org/the-report/

A comprehensive approach

4.4 To promote healthy, nutritious and culturally appropriate foods, a comprehensive package of policies across the food environment, food system and behaviour change communication that involve multiple sectors is needed, as outlined in World Cancer Research Fund International's NOURISHING framework (Figure 1). No single policy action is going to be effective.

Figure 1 World Cancer Research Fund International's NOURISHING framework



Policy coherence

4.5 The complexity of food systems must be taken into account in the development and implementation of public policy to improve nutrition. Food systems have four domains: health,

environmental, social and economic, and policy can impact these domains across four dimensions: quantity, quality, distribution and resilience.15 Nutrition assessments of policies across sectors are needed to create food systems that promote good nutrition. In addition, the interconnectedness of policies across sectors and policy coherence need to be assessed in order to achieve the desired impact and avoid unintended consequences.

4.6 To facilitate this knowledge exchange and understanding of interconnectedness, more effective multi-sectoral platforms are needed to assess the cross-cutting impacts across sectors on nutrition and ensure policy coherence. Examples of such platforms internationally include the United Nations Inter-Agency Task Force on NCDs, UN Standing Committee on Nutrition, Commission on World Food Security, and at country-level include National NCD Commissions, e.g. in the Caribbean16.

Life course approach

4.7 Nutrient provision in the first thousands days (from conception to the age of two) impacts the health of a child and also impacts later risk of disease in adulthood. For example, stunted children are vulnerable to obesity later in life17. Coherence across policies addressing malnutrition in all its forms is key to ensure policies address both undernutrition and obesity/nutrition-related NCDs synergistically. "Double-duty actions" do exist and more should be identified that can help address both undernutrition and overweight & obesity synergistically (e.g. healthy food procurement in schools).

5. What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

Actionable solutions

5.1 Policies across sectors18 have the potential to enable better nutrition outcomes of food systems. World Cancer Research Fund International's NOURISHING policy database19 provides a regularly updated list of implemented policy actions from around the world that help promote

15 Nesheim, MC, Oria, M and Yih, PT. 2015. A framework for assessing the effects of the food system. Washington DC: Institute of Medicine and National Research Council.

16 http://www.healthycaribbean.org/meetings-june-2015/june-5/resources/A-Civil-Society-Report-on-National-NCD-Commissions-in-the-Caribbean-Towards-a-more-Effective-Multisectoral-Response-to-NCDs-Part-1.pdf

17 WHA Global Nutrition Targets 2025: Stunting Policy Brief: http://www.who.int/nutrition/topics/globaltargets_stunting_policybrief.pdf

18 When looking at the range of actionable solutions, consider extending 'farm to fork' to 'farm to waste', recognising the sustainability aspect of food systems impacts both health and the environment.

19 www.wcrf.org/NOURISHING

healthier diets. A handful of examples, drawn from the database, are outlined in Table 1, as well as how they can impact nutrition and food systems.

Impact

5.2 More research is necessary on the impact of implemented government policy actions (including intermediary outcomes), as well as the area of value chain analysis due to the complexity of the food supply chain. Metrics are also needed to assess how food systems are linked and affect health outcomes.

Table 1: Policies that can influence nutritional outcomes of food systems

Policy area20	**Potential policy actions**	**Examples of policy actions21**	**Impact on foods systems and/or nutrition**
Nutrition label standards and regulations	e.g. nutrient lists on food packages, clearly visible 'interpretive' labels on foods and menus	**Chile** (2015) – front-of-package warning labels on foods that exceed specified limits for calories, saturated fat, sugar and sodium. **Ecuador** (2013) – "traffic light" labelling in which levels of fats, sugar and salt are indicated by red (high), orange (medium) or green (low). **South Korea** (2010) – mandatory menu labelling in all chain restaurants (with >100 establishments) including energy, total sugars, protein, saturated fat and sodium.	Nutrition labelling can influence industry to reformulate their products – this can help populations more broadly access foods of higher nutritional value.
Offer healthy foods and set standards in	e.g. nutrition standards in schools, workplaces and health	**EU School Fruit Scheme** (2009/2010) – provides financing	Making fruits and vegetables available

20 Policy areas taken from World Cancer Research Fund International's NOURISHING framework: www.wcrf.org/NOURISHING

21 Sourced from World Cancer Research Fund International's NOURISHING policy database: www.wcrf.org/NOURISHING

public institutions	facilities, fruit & vegetable programmes in schools	to support national school fruit and vegetable programmes **Brazil** (2009) – mandatory food- and nutrition-based standards for foods available in the national school meal programme. **South Korea** (2010) – "Green Food Zones" ban sale of fast foods and soda within 200 metres of schools **France** (2005) – vending machine ban in schools **US** (2008) – NYC Food Standards set nutritional standards for all food purchased or served by city agencies.	in schools increase consumption. Food standards restricting the availability of 'unhealthy foods' reduce consumption of these foods.
Use economic tools	e.g. targeted subsidies, health-related food taxes	**Mexico** (2014) – 10% sugary drinks tax **US** (2009) – revisions to Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) improved the composition and quantities of WIC-provided foods **US** (2006) – NYC 'Health Bucks' program provides incentive for low-income people to allocate spending to fruits and vegetables	Emerging evidence from implemented taxes indicate decreases in purchases of taxed drinks (e.g. Mexico). Targeted subsidies have been shown to overcome affordability barriers to healthy food.
Restrict food marketing	e.g. regulations restricting **all** forms of marketing to children that promote unhealthy diets	Countries with mandatory regulation of: **broadcast food advertising to children**: Chile (2015), Iran (2004), Ireland (2013), Mexico (2014), South Korea (2010), United Kingdom (2007)	Evidence shows that marketing influences children's food preferences and habits. Food preferences influence food consumption.

		non-broadcast communications channels: Chile (2015), South Korea (2010) **any medium**: Peru (2013) Countries with mandatory regulation of: **food marketing in schools**: Chile (2015), Poland (2014), Spain (2011), Maine, US (2007), Uruguay (2013)	
Improve nutritional quality of the whole food supply	e.g. reformulation to reduce salt, fat and sugar, elimination of trans fats, portion size limits	**Argentina** (2013) – salt law sets maximum salt-levels for widely consumed foods **UK** (2006) – voluntary salt reduction targets were set for 80 food groups **Denmark** (2003) – trans fat law bans the sale of products containing trans fats	Changes to the food supply change people's food consumption. Evidence from salt reduction indicates that people's tastes can change.
Set incentives to create healthy retail and food service environments	e.g. planning restrictions on food outlets, incentives for shops to sell healthy products	**Singapore** (2011) - Healthier Dining Programme encourages food operators to offer lower calorie meals and use healthier ingredients (e.g. oils with reduced fat and/or whole grains) **US** (2005) – 'Shop Healthy NYC' works with residents, food retailers and food suppliers and distributors to increase access to healthy foods.	The food environment influences food consumption.
Harness the food supply chain	e.g. supply-chain incentives for production, public procurement, health-in-all-policies, governance structures	**US** – Executive Orders in NYC (2008) and Massachusetts (2009) establish nutrition standards for all foods purchased and served by public entities.	Procurement standards have repercussions for upstream actors and activities in the food system.

	for multi-sectoral engagement	**Brazil** (2009) – law requires that 30% of national budget for food served in school meals programme is spent on foods from family farms **United Nations** – UN Standing Committee on Nutrition promotes cooperation among UN agencies and partner organisations in support of community, national, regional and international efforts to end malnutrition in all its forms.	
Inform people about food & nutrition through public awareness	e.g. education about food-based dietary guidelines and healthy eating, community and public awareness campaigns	**Australia** (2012) – 'LiveLighter' public health campaign to encourage people to eat healthily and be physically active to maintain a healthy body weight.	Awareness is one factor that influences what people eat.
Nutrition advice in health care settings	e.g. nutrition advice for at-risk individuals, telephone advice and support, clinical guidelines for health professionals on effective interventions for nutrition	**Brazil** – nutrition is part of comprehensive health care and provided by all services within Brazil's system of universal health coverage.	People can benefit from nutrition advice provided by their health care provider.
Give nutrition education & skills	e.g. nutrition, cooking/food production skills on education curricula, workplace health schemes	**England** (2014) – national curriculum includes mandatory hands on cookery for children up to Year 9. **Singapore** – employers are encouraged to establish a workplace nutrition programme based on guidelines provided by the Health Promotion Board.	Nutrition knowledge is positively correlated with healthy dietary behaviour.

6. What action should different stakeholders, including governments, civil society and the private sector, take?

6.1 All sectors have a role in ensuring farms and food systems produce food that's affordable, diverse and healthy. Therefore, a multi-sectoral, whole of society, whole-of-government approach is needed to improve nutrition and food systems.

We believe that the following stakeholders should take the following actions:

Governments should:

- Provide strong political leadership championing a multi-sectoral, whole-of-society approach
- Set national nutrition targets and develop and implement multi-sectoral and integrated national nutrition plans covering the full spectrum of malnutrition in all its forms
- Ensure policy coherence across sectors within government
- Develop food-based dietary guidelines22
- Develop and implement SMART financial and political commitments
- Develop a mechanism to monitor and enforce these commitments
- Create and enforce stronger government frameworks to regulate industry

Academia should:

- Identify actions that address both undernutrition and obesity/nutrition-related NCDs synergistically
- Conduct more research on the impact of implemented policy actions
- Carry out more value chain analysis to help understand the complexity of the food supply chain and identify potential policy levers within it to improve nutrition
- Clarify factors that can create an enabling environment for improving nutrition

Industry should:

- Support efforts to create and shape healthier environments within which people make decisions
- Make available a wide range of affordable and accessible foods that support good nutrition
- Increase transparency and accountability to improving nutrition

22 Following the example of Brazil: http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/brazil/en/

Civil society should:

- Raise awareness and mobilise support for implementing existing financial and political commitments to improve nutrition
- Monitor actions and hold governments to account, including highlighting where progress is lacking
- Support governments in identifying SMART financial and political commitments
- Strengthen collaboration between organisations and actors working either on undernutrition or obesity/overweight and non-communicable diseases

UN agencies should:

- Provide technical support to countries wanting to develop country-level nutrition targets and multi-sectoral, and integrated nutrition plans covering the full spectrum of malnutrition in all its forms
- Provide technical support to governments in identifying SMART financial and political commitments
- Support the implementation of the ICN2 Framework for Action
- WHO & FAO: develop objective and verifiable SMART indicators for the implementation of all actions listed in the ICN2 Framework for Action
- Mobilise support for a Decade of Action on Nutrition from Member States to strengthen action and accountability on malnutrition in all its forms

54. Tonya Rawe, CARE International

CARE welcomes the opportunity to submit feedback here and in the attachment on the Issues Note regarding the focus of the forthcoming High Level Panel of Experts report on Nutrition and Food Systems. CARE is pleased that the Committee on World Food Security has taken up the critical issue of nutrition and the role the CFS can play. CARE appreciates the focus of the report on food *systems* and all aspects of sustainability. In particular, CARE welcomes the reference in the Issues Note to Global Goal 13, on climate change.

We face a greater challenge than ever before: ending hunger and malnutrition in the face of climate change and natural resource scarcity. While much of the global dialogue on ending hunger focuses – overemphasizes, in fact – the need to increase yields, it is vital that the global community acknowledge that lack of food is not the sole cause of hunger. Inequality shapes who has access to food and the resources to grow it and buy it. It governs who eats first and who eats worst. When food is scarce, often because of extreme weather or disasters, women and girls are less likely or the last of the family to eat. And even without crisis, cultural tradition often dictates that women and girls eat last, after men and children have eaten. If we are to achieve the new Sustainable Development goal of ending hunger and malnutrition by 2030, particularly in the face of climate change, we must address these underlying inequalities in food systems.

Acknowledging that this focus for the HLPE report is important and complex, CARE also recognizes the role of inequality as a driver of hunger, malnutrition, and poverty, and believes strongly that issues of gender inequality and power dynamics (from household to global level, as it impacts the ability of different populations to access adequate nutritious food) must also be included. These issues should, in fact, serve as the lens through which all the questions are examined.

By beginning with questions of power and inequality, particularly through a gender lens, and examining growing threats to nutrition like climate change, the HLPE report can contribute to policy approaches, actionable solutions, and research that target underlying causes of malnutrition and contribute to sustainable, positive impact. We offer additional reflections on and recommendations for the focus of the HLPE report on Nutrition and Food Systems.

CARE welcomes the opportunity to submit feedback on the Issues Note regarding the focus of the forthcoming High Level Panel of Experts report on Nutrition and Food Systems. CARE is pleased that the Committee on World Food Security has taken up the critical issue of nutrition and the role the CFS can play. CARE appreciates the focus of the report on food *systems* and all aspects of sustainability. In particular, CARE welcomes the reference in the Issues Note to Global Goal 13, on climate change.

About CARE

CARE is a leading humanitarian organization fighting global poverty. We seek a world of hope, tolerance and social justice, where poverty has been overcome and people live in dignity and security. CARE will be a global force and partner of choice within a worldwide movement dedicated to ending poverty. We will be known everywhere for our unshakeable commitment to the dignity of people. We strive to serve individuals and families in the poorest communities in the world. Drawing strength from our global diversity, resources and experience, we promote innovative solutions and are advocates for global responsibility.

Our Focus on Women and Girls

Globally, of the 1.2 billion people that live in absolute poverty, the majority are women and girls. Over a quarter of a million women die each year from largely preventable causes related to pregnancy and childbirth. Women play critical roles in food production and preparation, but in many cultures they consume the poorest quality food and are the first to face hunger when food is scarce.

Our Work on Nutrition

Addressing malnutrition and improving nutrition security are not only central to CARE's food and nutrition security strategy, but also to our overall strategy to reduce poverty, promote economic and cognitive development of countries, and prevent untimely deaths. CARE's nutrition security work focuses primarily on undernutrition including wasting, stunting and micronutrient deficiencies.

CARE offers the following reflections, drawing substantially from a recent policy report, "Cultivating Equality: Delivering Just and Sustainable Food Systems in a Changing Climate,"[i] released in October 2015.

Problem statement (adapted from "Cultivating Equality")

We face a greater challenge than ever before: ending hunger and malnutrition in the face of climate change and natural resource scarcity. We live in a world of 795 million chronically hungry people[ii], where more than 161 million children under the age of five are stunted[iii], and one-third of childhood deaths are associated with malnutrition.[iv] An estimated 250 million preschool children suffer from vitamin A deficiencies, which can cause blindness and even death.[v] At the same time, overweight and obesity impact 2.1 billion people worldwide, and the number of overweight people is rising fastest in developing countries, introducing a triple malnutrition burden of undernourishment, micronutrient deficiency, and overweight and obesity.[vi] Malnutrition, particularly in the first 1000 days of a child's life from pregnancy to age two, can permanently impair cognitive and physical development and lead to low immunity to diseases. These impacts decrease a child's learning and earning potential, creating a vicious cycle of intergenerational poverty. Malnutrition takes a monumental toll on a nation's productivity and human potential.

Furthermore, as the most recent report from the Intergovernmental Panel on Climate Change highlights, climate change will impact all aspects of food security: availability, access, utilization, and stability. [vii] Global warming threatens to decrease agricultural production[viii], dramatically impact water quality and availability[ix], and increase the severity and frequency of natural disasters. Recent research[x] reveals that climate change may also decrease the nutritional value of cereals, reducing their protein content, and of grains and legumes, lowering levels of zinc and iron, key nutrients often already lacking.

While much of the global dialogue on ending hunger focuses – overemphasizes, in fact – the need to increase yields, it is vital that the global community acknowledge that lack of food is not the sole cause of hunger. Inequality shapes who has access to food and the resources to grow it and buy it. It governs who eats first and who eats worst. When food is scarce, often because of extreme weather or disasters, women and girls are less likely or the last of the family to eat.[xi] And even without crisis, cultural tradition often dictates that women and girls eat last, after men and children have eaten.[xii]

Hunger and poverty are not accidents—they are the result of social and economic injustice and inequality at all levels, from household to global. Enabling food insecure populations to access – to grow or buy – adequate, nutritious food demands an honest examination of power in **food systems**, of who wins and who loses – why, in a world of immense resources, almost 800 million people still suffer from chronic hunger and 1.2 billion live in extreme poverty. If we are to achieve the new Sustainable Development goal of ending hunger and malnutrition by 2030, particularly in the face of climate change, we must address these underlying inequalities in food systems.

Comments on the Issues Note

The questions outlined in the Issues Note fall into four distinct categories, as CARE reads it: diet, consumption patterns, policy, and implementation. **Acknowledging that this focus for the HLPE report is important and complex, CARE also recognizes the role of inequality as a driver of hunger,**

malnutrition, and poverty, and believes strongly that issues of gender inequality and power dynamics (from household to global level, as it impacts the ability of different populations to access adequate nutritious food) must also be included. These issues should, in fact, serve as the lens through which all the questions are examined.

In our own examination of what's needed to address hunger and malnutrition in the context of climate change and to promote equity and gender equality, CARE has developed a set of principles entitled **SuPER: Sustainable, Productive & Profitable, Equitable, and Resilient**. A SuPER approach to agriculture and food systems[1]:

- Promotes **sustainable** agriculture systems that address climate and environmental impacts and are grounded in healthy ecosystems; are driven by stable, accountable and enduring institutions and policies; and are based on sustainable social and economic policies and investments that prioritize the redress of gender inequality in agriculture.
- Promotes **productive** and **profitable** climate-sensitive intensification that increases yields and returns on investment by farmers, specifically addresses the needs of women producers, and provides greater quantities of affordable nutritious food to rural and urban consumers.
- Promotes **equitable** outcomes in smallholder agriculture by supporting the realization of the Right to Food and other rights for the most vulnerable; enables equal access to opportunities, resources, services and rewards for women and men farmers; and promotes access to affordable nutritious food by farm laborers and rural and urban consumers.
- Builds **resilience** for communities and systems to withstand and recover from climate-induced shocks and stresses and other risks by supporting community-based adaptation, connecting institutions and collectives for better governance, and using market, technical and climate information to support farmer-led analysis, planning and risk management.

This approach goes beyond how and how much food is produced to incorporate crucial and often neglected elements – from equity to nutrition to governance – that are necessary to alleviate hunger and poverty, protect the environment, improve gender equality, and create just food systems.

In order to "assess the influence of various types of food systems on diets, nutrition and health" and articulate "the critical relationships between food systems and nutrition," the report must examine the **power dynamics** among different stakeholders in different types of food systems:

1. How do power dynamics – from global to local to household level – impact access to resources to grow or buy a diversity of nutritious foods, particularly for chronically malnourished or marginalized populations?
2. What role do different stakeholders play?
3. How is power distributed among different stakeholders and what positive or negative impact do they have, as a result, on access to adequate nutritious food for all?

Imbalances of power and inclusion or exclusion can result from poor policies or lack of implementation and/or can be addressed with stronger policies that reflect good governance. CARE welcomes the inclusion of questions related to the potential of public policy to promote good nutrition. In the context of examining policy approaches, the HLPE report may also look specifically at the **role of small-scale food producers in food systems**, given the significant role they play in providing food around the world:

4. What policy approaches support the role of small-scale food producers in providing

(and benefiting from) a diversity of nutritious foods in local food systems in a sustainable manner?

Women are both key players in food systems and a significant portion of hungry and malnourished populations around the world. Policies and social and cultural norms often dictate their roles and their access to resources, including their access to adequate, nutritious food. **A gender lens** must be applied throughout the HLPE's examination of food systems and nutrition and the relationship among different players in food systems. At the same time gender inequality is examined as a driver of malnutrition, the exploration of actionable solutions must prioritize **approaches to promote gender equality and to empower women:**

5. What approaches successfully engage men and boys around nutrition outcomes and foster more gender equitable access to adequate nutritious food at household levels? What approaches enable positive role models to act, free from peer pressure, in ways that are gender- equitable and fair, particularly in sharing labor burdens like child and elder care, chores, and food production and preparation, as well as sharing opportunity for income generation and participation in governance processes, etc.?

While gender inequality is a driver of hunger and malnutrition, CARE's programmes have demonstrated that women's empowerment is an effective approach for addressing malnutrition. CARE's SHOUHARDO programme in Bangladesh achieved significant reduction in stunting rates through the integration of health and hygiene interventions, agricultural training to increase food production and incomes, and women's empowerment. However, research found that "no single intervention reduced child stunting more than women's empowerment" [xii]:

6. How can the promotion of gender equality, including the engagement of men and boys, and the empowerment of women contribute to positive nutrition outcomes?
7. What is the evidence-base for the potential of women's empowerment to improve nutrition?

The comprehensive nature of the new Global Goals reflects the need for holistic and comprehensive approaches to hunger and nutrition, approaches that acknowledge the interplay among social, economic, and environmental challenges. As such, CARE appreciates the focus of the report on food *systems* and all aspects of sustainability. In particular, CARE welcomes the reference in the Issues Note to Global Goal 13, on climate change, given, as outlined above, the impacts of climate change on all aspects of food security. Climate change is itself a study in injustice, as the populations least responsible for causing it are the most vulnerable and the most heavily impacted.

Yet the Issues Note does not reflect a focus on the **impacts of climate change on nutrition**, an area of emerging research which needs to be explored in light of increasing episodes of erratic and severe weather events like El Nino, which result in droughts and floods, as well shifting seasons and rainfall patterns and increasing average temperatures. By examining these impacts, the HLPE and CFS can seize a distinct opportunity to raise awareness in advance of how food systems and public policy at all levels can avert and address these impacts. Referencing Global Goal 13 creates an imperative for the HLPE report to look ahead to the future ability of food systems and the actors within them to ensure access to adequate, nutritious food for all:

8. What is the state of research on the impact of climate change on nutrition, not only the impact on availability and access but also utilization as well as the impact of shifting climate patterns and rising average temperatures on the nutritional value of foods? How will climate change directly impact nutrition (through decreased food production or nutritional value of foods) and indirectly (through decreased availability of clean water)?
9. What is the evidence-base for actionable solutions, beyond new tools or technological innovations and including solutions that address drivers of vulnerability and build the capacity of populations to adapt?

Holistic and comprehensive approaches to food and nutrition security, in the face of environmental degradation and climate change, will inevitably require discussion of **trade-offs**, between different stakeholders' priorities and between the needs of vulnerable populations today and tomorrow. The HLPE report can also provide value in exploring these potential trade-offs:

10. What are the potential trade-offs among agriculture, nutrition, environmental sustainability, carbon footprint, and economic sustainability or viability?
11. How might policies and solutions be designed to ensure that trade-offs are navigated in a way promotes the needs of the most vulnerable and protects their right to food?

An exploration of solutions presents a critical **opportunity for learning** across countries, regions, and stakeholders. A keen opportunity for this is in relation to behavior change. The questions laid out in the issues note include a strong focus on diet and consumption, factors influenced not only by available choices but also by behavior and levels of information. While behavior change has been a go-to solution to promote good nutrition in poor communities, what might we learn from those efforts?:

12. What approaches promote change in social norms as well as individual behavior?
13. What learning might south-north collaboration contribute to, particularly as it relates to social behavioral change needed to shift global north diets to (a) a more nutritious mix, (b) a lower reliance on animal-sourced foods, and (c) a less wasteful approach?

By beginning with questions of power and inequality, particularly through a gender lens, and examining growing threats to nutrition like climate change, the HLPE report can contribute to policy approaches, actionable solutions, and research that target underlying causes of malnutrition and contribute to sustainable, positive impact. In particular, by providing actionable solutions, the HLPE report supports the realization of the SDGs and will guide the "commitments to action" made at the ICN2 conference.

---

[i] CARE (Rawe, T., and Deering, K.) and Food Tank (Echols, W., Nierenberg, D., Nink, E., Ahern, C., and Small, S.). Cultivating Equality: Delivering Just and Sustainable Food Systems in a Changing Climate. (2015). www.care.org/cultivatingequality

[ii] Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD) and World Food Programme (WFP). (2015) The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress. Rome, FAO.

[iii] The United Nations' Children's Fund (UNICEF), The World Health Organization (WHO), The World Bank. (2012) Joint Child Malnutrition Estimates: Levels and Trends in Child Malnutrition. http://www.who.int/nutgrowthdb/jme_unicef_who_wb.pdf accessed September 24, 2015.

[iv] WHO, Partnership for Maternal, Newborn and Child Health. Child Mortality: Millennium Development Goal 4 Fact Sheet. (2011) http://www.who.int/pmnch/media/press_materials/fs/fs_mdg4_childmortality/en/ accessed September 24, 2015.

[v] WHO. (2015) Nutrition: Micronutrient Deficiencies. http://www.who.int/nutrition/topics/vad/en/ accessed September 24, 2015. [vi] Ng, Marie et al. "Global, Regional, and National Prevalence of Overweight and Obesity in Children and Adults During 1980–2013: A Systematic Analysis for the Global Burden of Disease Study." The Lancet. Volume 384, No. 9945, p766–781, 30 August 2014.

[vii] IPCC, 2014. Summary for Policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B et al.] Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.

[viii] IPCC Working Group II: Final Draft Summary for Policy Makers (SPM). In IPCC Working Group II Fourth and Fifth Assessment Reports (AR5 WGII and AR4WGII): Climate Change 2014: Impacts, Adaptation and Vulnerability. Unofficial draft. IPCC https://nofrakkingconsensus.files.wordpress.com/2013/11/wgiiar5-spm_fgdall.pdf

[ix] Jiménez Cisneros, B.E., T. Oki, N.W. Arnell, G. Benito, J.G. Cogley, P. Döll, T. Jiang, and S.S. Mwakalila, 2014: Freshwater resources. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 229-269.

[x] Samuel S. Myers, Antonella Zanobetti, Itai Kloog, Peter Huybers, Andrew D. B. Leakey, Arnold J. Bloom, Eli Carlisle, Lee H. Dietterich, Glenn Fitzgerald, Toshihiro Hasegawa, N. Michele Holbrook, Randall L. Nelson, Michael J. Ottman, Victor Raboy, Hidemitsu Sakai, Karla A. Sartor, Joel Schwartz, Saman Seneweera, Michael Tausz & Yasuhiro Usui. "Increasing CO2 Threatens Human Nutrition." Nature 510, 139–142 June 5, 2014. Published online 07 May 2014.

[xi] Ringler, Claudia, ed.; Quisumbing, Agnes R., ed.; Bryan, Elizabeth, ed.; Meinzen-Dick, Ruth Suseela, ed. (2014) Enhancing women's assets to manage risk under climate change: Potential for group-based approaches. Washington, D.C.: IFPRI. [xii] FAO. (2011) Committee on Food Security. Policy Roundtable: Gender, Food Security and Nutrition. CFS2011/5. http://www.fao.org/docrep/meeting/023/mc065E.pdf

[xii] Reaching New Heights: The Case for Measuring Women's Empowerment A poverty-fighting program in Bangladesh helps children grow taller and underscores the need for more evidence in the movement to empower women and girls worldwide.http://www.care.org/reaching-new-heights-case-measuring-women%E2%80%99s-empowerment

55. Geoff Orme-Evans, Humane Society International, USA

Sustainability, Access, and Civil Society Engagement

Humane Society International (HSI) is one of the world's largest animal protection organizations working to protect all animals. HSI's farm animal welfare initiatives engage stakeholders at every stage in the supply chain for eggs, milk, and meat—including farmers, governments, food retailers, financial

institutions, and consumers—to improve animal welfare and stem the unsustainable rise in meat consumption globally. We appreciate the opportunity to provide input to the *Issues Note: Nutrition and Food Systems*. Our key comments relate to 1) specific metrics to be used when evaluating sustainability, 2) the need for more specificity and detail when assessing food access, and 3) engagement with civil society organizations that are already working to promote healthier, more humane, and sustainable diets.

Sustainability

Those food products that require the most water and land resources, and that are the greatest contributors to climate change, pose serious threats to long-term food security. Metrics, including protein or caloric availability per kilogram of grain, or per liter of water, should play a key role in evaluating the sustainability of different food products, as should the sustainability of complete diets (e.g. Scarborough et al. 2014. Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK. Climatic Change 125(2):179-192).

Further, the conceptual framework must allow for an in-depth look at the impact of different production systems on the surrounding environment and public health. For example, agricultural production systems that propagate antimicrobial resistance, release noxious odors into the surrounding community, or otherwise pollute the environment with dangerous chemical or biological contaminants must be rated for their potential dangers. The current list in the *Issues Note* does not adequately reflect the need for a detailed evaluation of food security and nutrition in relation to sustainability, including different production systems' environmental and public health impacts.

Access

Assessing food security also requires an in-depth analysis of access to resources, including the disaggregation of data relating to food access and nutritional deficiencies amongst different socio-economic groups within a country. Tremendous nutritional disparities exist, not only amongst countries, but within countries as well. Developing countries with high levels of hunger and undernutrition now simultaneously bear the burden of an obesity-related public health crisis, with the number of overweight women exceeding the number of underweight women in most developing countries. In countries that bear the double burden of under-nutrition and obesity, under-nutrition is frequently greater in rural areas. The availability of disaggregated data would allow for a more nuanced approach to the growth and development of food systems. For example, the production and consumption of environmentally costly foods, including animal source foods, can be be limited and specifically targeted towards populations with relevant nutritional deficiencies. On this issue, we offer our report, *The impact of industrial farm animal production on food security in the developing world* (http://www.hsi.org/assets/pdfs/hsi-fa-white-papers/factory_farming_and_food.pdf), as guidance.

Further, detailed attention must be paid to the underlying social and economic causes of malnutrition in women, children, and other vulnerable or marginalized populations. Age at first pregnancy, the status of women in the household, and the availability of sanitation or health care services all play a critical role in nutritional outcomes. The conceptual framework employed must allow for detailed and in-depth analysis of barriers to accessing food, health, economic, and other resources necessary to achieve food security at *household and individual levels.*

Thus, the *Issues Note* should more comprehensively evaluate access to resources, including disaggregated data on different socio-economic groups within and amongst countries. And it should include underlying causes of malnutrition.

Engagement with Civil Society

In both industrialized and developing countries, a variety of public health, environmental and animal protection groups have launched campaigns and programs to shift consumer choice towards healthier, more humane, and ecologically sustainable food choices. A tremendous wealth of knowledge is being generated within these circles relating to the drivers of consumer choice, behavioral change (as it relates to dietary practices), and effective policy, educational, and marketing tools for promoting more plant-based eating. For example, Humane Society International is successfully promoting Meatless Monday and Green Monday throughout Asia, Latin America, and in South Africa. The Humane Society of the United States has convinced major food companies, and entire school districts in the United States to adopt Meatless Monday and similar initiatives. Leaders in the public health sphere, including the Johns Hopkins School of Public Health, also promote Meatless Monday. The CFS would benefit from tapping into this knowledge base, and drawing more of these civil society actors into the dialogue. Therefore, the *Issues Note* must go beyond vaguely identifying stakeholder actions and also evaluate current and past actions and successes amongst stakeholder groups, including lessons learned, opportunities to buoy and scale actions, and areas in need of further research.

Further, as evidenced by the examples above, the discussion on the need for reduced meat consumption rapidly gaining momentum across the world. It is no longer politically necessary to side-step the issue. The need for the reduced consumption of meat, egg, and milk products – particularly by consumers in industrialized countries, and mid- and high income consumers in developing and emerging economies – must be stated openly in the *Issues Note*.

We hope these comments are useful and look forward to discussing any questions the Panel may have.

56. Morgane Danielou, Private Sector Mechanism, France

Sustainable and resilient global food security and nutrition systems must provide consumers access to diverse diets with adequate amounts of nutritious foods that are safe and affordable on a regular basis. Each of these components are essential in their own right, but no single component is sufficient to overcome food insecurity.The HLPE report should address these inter-linkages.

The HLPE report should address the nexus of nutrition in global food security systems. It should underscore the long neglected recognition of nutrition and the necessity to embed nutrition specific interventions and nutrition sensitive policies, program and initiatives throughout food systems-- from production to consumption.

The value test of global food systems will not be whether more food is produced for the already well fed, but whether critical deficiencies in food systems can be reshaped from farm to fork to eliminate poverty and provide vulnerable populations sustainable, regular access to nutritious, affordable, safe and wholesome food products. Until this goal is achieved, hunger and malnutrition will likely remain the number one global health and national security threat, killing more people every year than HIV/AIDs, malaria and tuberculosis combined. While some progress has taken place, the current status of malnutrition in the world remains unacceptable.

The report should point to the need for cooperation with related disciplines, in particular within the following areas: health, agriculture, education, environment, finance, gender, diversity, and development studies. The report should also address the need to implement nutrition-specific

interventions and to embed nutrition in multi-sectoral nutrition-sensitive strategies within national and local government plans and initiatives.

The PSM believes that key considerations are:

· Effective nutrition policies must be developed using evidence-based science in order to address all forms of malnutrition

· Effective and efficient nutrition policies require coordination across government ministries with input from the research community, private sector and civil society

· Food systems should place emphasis on food safety, quality, and assurance across the food supply chain

· Protection and conservation of natural resources to sustainably continue to grow healthy and nutritious food is necessary, in particular considering the impacts of changing climates on nutrition

· Emphasis should be put on the empowerment of women and girls as they health is directly linked to the health and nutrition of future generations

· Nutrition education is fundamental in triggering changes in nutrition, cultural practices and diets over the long term as such programs increase public awareness of the important of eating well for good health.

· The private sector as a producer, processor and provider of food has a fundamental role to play to achieve a more nutrition-enhancing food system by innovating and investing in the food and agricultural sector

· Addressing issues that impact a community/s or population's ability to thrive economically such as poverty, gender equality, water access, and sustainable agriculture.

· The private sector would welcome the opportunity to share good practices and case studies to demonstrate the private sector's contribution to improving nutrition at all points along the food supply chain

57. Jean Blaylock, UK Food Group, United Kingdom

The UK Food Group welcomes the forthcoming report by the HLPE on Nutrition and food systems, and the opportunity to comment on the issues note at this early scoping stage. It is important for the CFS to be able to take a normative role on nutrition as part of its mandate on global policy convergence, and this report should be able to play an important part in this.

The UK Food Group is a network of development, environment, farmer and academic groups in the UK working on global food and agriculture issues. We find the issues note to be very useful, capturing a lot of important aspects and we support much of it. There are also some further aspects that we consider it would be useful to include.

1) Overall perspective

It is very welcome that the issues note recognises there is a diversity of food systems and evidence of the health and nutrition implications of different food systems, and it is vital that the report reflects this clearly. Different food systems have not just 'different' but often better or worse implications for food and nutrition and the report should not shy away from saying so. Food systems here should

incorporate all aspects from models of production to trading and market structures to consumption. We consider that agroecological approaches to production in the context of resilient local markets and economies without high levels of concentrated market power, have benefits for healthy and diverse diets that support nutrition.

The issues note refers to the economic, social and environmental aspects of sustainability and to social, environmental and global driving factors which we support. We consider it vital that the report should look at the basic and underlying determinants of nutrition – social, economic, environmental and political. A political analysis of power and trends should not be omitted – nutrition is often described as a complex issue (including in this note) but if the entire political dimension is avoided, then the complexity can never be addressed.

In looking at the underlying determinants of nutrition, the report must take a structural and systemic perspective. We need to understand how we can build a food system that delivers good nutrition for all as a normal and natural outcome, rather than thinking only of interventions that plug holes in the broken flood barrier but cannot change the overall flow of a food system that fundamentally is not geared to good nutrition. Importantly, structural discrimination of large sections of society, among them smallholder farmers, indigenous people, pastoralists, fisherfolk, landless people, and women, has to be acknowledged and addressed. Policy recommendations should not reify structures of uneven economic power that are reflected in uneven social relations, including but not limited to gender discrimination.

We agree that the report should address malnutrition in all its forms, because it is important to take a holistic view of the issues. Similarly multidimensionality can help to avoid a reductionist view.

The essential perspective that is not mentioned in the issues note, but which must be in the foundation of all the work of the CFS and the HLPE is a human rights approach. This is particularly in regard of the right to adequate food, the right to health and the right to water, and there is scope for deepening the understanding of how nutrition is incorporated in the rights framework.

Lastly, on perspective, we wish to emphasise the centrality of achieving good nutrition through diversified, balanced, healthy, sustainable, culturally appropriate (and delicious) diets rather than through specific products. While particular products remain important for disaster and emergency situations, they are not solutions for everyday life. On the contrary, such products may increase dependency instead of promoting long term sustainable and local solutions. The focus should be on strategies for achieving sustainable, equitable, and participatory local food systems that can enhance food and nutrition security, livelihoods, and local economies, and women have a decisive role in these strategies. This will ultimately be more cost-effective and sustainable, building capacity and self-determination in local food systems and foregrounding inclusive participation of all members of society. In line with a human rights approach women and men should be regarded as actors, not as vulnerable beneficiaries, acknowledging their own capacities to find local solutions23. In particular breastfeeding must be promoted and protected as the preferred way for mothers to feed their babies.

23 Anne C. Bellows, Flavio L.S. Valente, Stefanie Lemke, María Daniela Núñez Burbano de Lara (eds.), Gender, nutrition, and the human right to adequate food: toward an inclusive framework. Routledge, 2016.

2) Methodology

We support the reference in the issues note of the need to include sources of evidence from experiential knowledge alongside academic sources.

We wish to highlight something that is spelled out in the rules and procedures of the HLPE, but is worth restating, on the treatment of controversies and contentious issues:

"if controversies on the analysis or on possible advice emerge, the role of the HLPE is not necessarily to force the consensus or to resolve the debate in finding winners and losers, or in arbitrarily or "politically" choosing between one or another option. It is rather to present the controversies, reflect all sides of the debate, disentangle its fundamentals, and explain to the policy makers the underlying competing rationales, and where are the main uncertainties or pivotal points, either in data or reasoning."24

3) Particular issues

We welcome the reference to climate change in the issues note as a driver. Climate change will have profound effects on nutrition in multiple ways – through its impact on agricultural production, on disease vectors, on increased frequency of natural disasters and likely increased frequency of conflict.

In addressing drivers, it is important to look at corporate power as a driver of change and a shaper of consumer 'choice'. This includes both concentrated market power that simply determines what is available, and the role of advertising.

On the role of public policy, this should not be restricted to public education about nutrition. Education is needed, but the states responsibilities to respect, protect and fulfil should go further. This can include regulation of advertising and marketing, particularly to children, to prevent the promotion of high-fat, high-sugar and highly-processed products. Developing policies on public procurement that take into account nutrition, alongside environmental and ethical factors, is also effective, for instance for meals provided in schools and hospitals. Other innovative measures include a tax on 'sugary drinks' and finance initiatives to support the setting up of healthy food projects.

The issues note mentions cultural appropriateness, which is an important aspect, which can come into conflict with market power and trade dumping.

---

24 2 HLPE Steering Committee, Internal procedures and methodological guidelines for the work of the High Level Panel of Experts on Food Security and Nutrition. HLPE, 2014, p11 www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/Official_Docs/HLPE-Internal-Procedures-and-Meth- Guidelines_Nov_2014.pdf

The report needs to outline the need for robust safeguards against conflict of interest when private sector and philanthropic organisations are involved in public policy discussions on nutrition, whether in the CFS, other global fora or at regional, national or local levels.

The issue note does not mention gender and women's rights, but this needs serious consideration, including on nutritional allocation within the household. There is ample evidence that the position of women is crucial for the food and nutritional situation and overall wellbeing of families. However, due to social norms women face structural discrimination and have limited access to productive resources such as land, water, agricultural inputs, credit, extension and other services. Further, their role in agriculture and as food producers is still largely unacknowledged. While there are increased awareness and efforts to include women, without transformation of the society as a whole, women will continue to be instrumentalised and overly exhausted within the current frameworks of (predominantly economic) empowerment. Barriers to participation that women in many societies are facing need to be acknowledged and overcome by trengthening women's rights.

As part of the much needed systemic perspective mentioned earlier, it is critical not to focus on women as a 'vulnerable' group in isolation from decisive structural issues at the household and community levels. Men should be integrated into related research and programming, recognizing that not doing so perpetuates women's 'burden' of food related labours, remains blind to the potential, real, and desperate need for men's changing identities and masculinities, and ultimately results in the limited success of food and nutrition programs. Besides gender, other social dynamics, such as age, social status, ethnicity and race need to be taken into account in order to reveal and more clearly differentiate hierarchies among women and men and their different social locations.3

As part of the underlying environmental determinants of nutrition genetic diversity needs to be considered. Loss of agricultural biodiversity is one of the factors in changing food systems.

Related to this are knowledge systems, including traditional knowledge.

Lastly there is also a need for coherence, continuity and learning within the HLPE's own work. Last year's workstream on water is very relevant for the workstream on nutrition, as is the present workstream around livestock. For instance, consumption of meat and dairy products needs to be reduced in many developed countries while the impact of intensive livestock farming on climate change and land use priorities needs to be considered.

58. Patrick Mink, Federal Office for Agriculture, Switzerland

On behalf of the Swiss Federal Office for Agriculture FOAG, I would like to thank the HLPE for this opportunity to comment on this timely and important initiative.

We are very pleased to see that the report will adopt a food systems approach to look at nutrition, from farm to fork. In fact, Switzerland plays an active role in promoting sustainability all along the food chain at global, regional and national level. Switzerland is co-leading the Sustainable Food Systems (SFS) Programme of the 10 Year Framework of Programmes on Sustainable Consumption and Production (10YFP), a global multi-stakeholder initiative that aims to accelerate the shift towards sustainable food systems by adopting such a systemic approach. This Programme addresses several of the elements presented in the Issues Note (e.g. sustainable diets) and we believe that it could be highly

valuable to build on these interlinkages and make best use of synergies between the work of the 10YFP SFS Programme and the HLPE report.

Regarding the main elements as presented in the Issues Note, we would like to underline that they are very relevant and overall they capture the main issues in the context of nutrition and food systems very adequately. In the first paragraph on page 1, we would propose to highlight also SDG 12 on sustainable consumption and production, in addition to Goals 2 and 13. Further, it could be valuable for the report to highlight some existing case studies on sustainable diets (e.g. Mediterranean diet).

We agree with the importance of the proposed questions to be addressed by the report, and in this regards, we would like to suggest to take into account the following core questions:

- What are the main factors determining nutritional outcomes, along the different stages of the food chain and in different regional and national contexts? Consequently, where lies the largest potential to act upon food systems in order to achieve better nutritional outcomes?
- Which are the food systems and/or elements of certain food systems that have the most positive impact on nutrition?
- What actions should be taken and/or what policies should be promoted in relation to food systems, in order to achieve better nutritional outcomes? How important is the cultural dimension with regard to the success of such actions and/or policies?
- Are there trade-offs between nutritional outcomes and the sustainability of food systems, or does better nutrition reinforce more sustainable food systems?

Thank you and we remain at your disposition for any additional information regarding the 10YFP SFS Programme.

59. Marzella Wüstefeld, World Health Organization, Switzerland

Thank you for giving us the opportunity to provide comments on the proposed Issue Note on the new HLPE report on Nutrition and Food Systems. We welcome that the CFS has decided to play an important role in advancing nutrition within its mandate and added value, in line with the 2030 Agenda and the outcomes of the Second International Conference on Nutrition (ICN2). Our detailed comments are attached.

Best regards,

Marzella Wüstefeld PhD

Technical Officer

Nutrition for Health and Development

World Health Organization

Geneva

Thank you for this opportunity to provide comments on the proposed Issue Note on the new HLPE report on Nutrition and Food Systems.

We welcome that the Committee on World Food Security (CFS) has decided to play an important role in advancing nutrition within its mandate and added value, in line with the 2030 Agenda for Sustainable Development and the outcomes of the Second International Conference on Nutrition (ICN2). In this context the planned HLPE report on Nutrition and Food Systems is timely and highly relevant. The global food system has evolved with a greater proportion of food being processed and traded, nationally and internationally. The availability of highly-processed commercial food products with high content in fats, sugars and salt/sodium has increased, often replacing local foods and healthy diets with the needed micronutrients, and often resulting in excessive consumption of energy, fats, sugars and salt. The fundamental challenge today is to improve nutrition through food systems that sustainably enable the provision of a healthy diet. For this to happen it needs the implementation of coherent policies and better coordinated actions across all relevant sectors to preserving, strengthening and recovering healthy and sustainable food systems.

1. **We fully support that the nutrition focus of the HLPE report addresses malnutrition in all its forms**, across the human life cycle and including marginalized and vulnerable populations. The world is facing multiple burdens of malnutrition. Alongside the problems of chronic undernourishment and undernutrition, most countries in the world are also facing increasing problems associated with overweight, obesity and diet-related noncommunicable diseases (NCDs). In addition, both under- and overnutrition are often occurring with micronutrient deficiencies. While the trends of undernutrition decline, the trends of overnutrition increase. (REF UNICEF, WHO, and World Bank 2015. Joint Child Malnutrition Estimates. http://data.worldbank.org/ child-malnutrition). Over half a billion adults are obese and at least 41 million children under 5 years of age are overweight with the greatest rise in the number of children being obese or overweight coming from low- and middle-income countries, while diet-related NCDs are becoming serious global public health problems even in low- and middle-income countries. (WHO 2015. Obesity and Overweight. Fact Sheet 311. Available at: www.who.int/mediacentre/factsheets/fs311/en/). The HLPE report should take into account latest reviews and evidence on diet related noncommunicable diseases and their risk towards increased impoverishment of households, the various linkages to poverty and marginalized population groups (Reference should include a forthcoming series in The Lancet journal).

2. **Nutrition and Food Systems is a global agenda.**

   A holistic approach, addressing all forms of malnutrition, is highly relevant in the context of the new Agenda 2030 on Sustainable Development and the outcomes of the Second International Conference on Nutrition (ICN2). Both of which are universal and address all countries. The HLPE report, therefore, should develop a clear strategy to bring all countries on board. There is no single country in the world that is not affected, in one way or the other, by the broken food system and by malnutrition.

3. **The ICN2 gives a strong mandate and its outcomes underline the urgent need to act on our broken global food system.**

   Department of Nutrition for Health and Development | World Health Organization | 20 Avenue Appia | 1211 Genève 27 | Switzerland The HLPE report should make reference in particular to the political declaration of the Second International Conference on Nutrition (ICN2) (FAO, WHO 2014) that addressed the multiple challenges of malnutrition in all its forms. The 10

commitments of the Rome Declaration on Nutrition set out a common vision and provide a mandate, as well as the obligations, for governments to address nutrition in the coming decades. We would like to draw particular attention to the following commitments to action in the Rome Declaration, as adopted by Member States: 15c. Enhance sustainable food systems by developing coherent public policies from production to consumption and across relevant sectors. 15d. Raise the profile of nutrition within relevant national strategies, policies, action plans and programmes and align national resources accordingly.

With this regard, the HLPE report should address very specifically the nine recommended actions for sustainable food systems enabling healthy diets that are outlined in the ICN2 Framework for Action, recommendation 8 to 16. The types of foods produced and how they are processed, traded, retailed and marketed through the supply chain impact the collective surroundings, opportunities and conditions that influence people's food and beverage choices and dietary practices and consequently, their nutritional status. A food system approach – from production to consumption – is thus key to promote healthy diet and improve nutrition, as isolated actions have limited impact.

These recommendations addressing the food supply side and the food demand side, need to be looked at in different food system types and context. The HLPE report should go beyond these broad recommendations and be in view of operationalizing these recommendations of the ICN2 FFA. Clearly, a country and region based approach would be important to look at the specifics of those recommendations.

4. **The HLPE report should put Healthy Diet at the centre of the dynamics of change of food systems.**

The HLPE report will be a critical milestone in identifying the changes needed for reshaping our food systems. We would like to refer to the WHO recommendations on healthy diet. According to WHO, a healthy diet refers to a balanced, diverse and appropriate selection of foods eaten over a period of time. A healthy diet ensures that the needs for essential macronutrients (proteins, fats and carbohydrates including dietary fibres) and micronutrients (vitamins, minerals and trace elements) are met specific to the person's gender, age, physical activity level and physiological state.

WHO indicates that for diets to be healthy (a) daily needs of energy, vitamins and minerals should be met, but energy intake should not exceed needs; (b) consumption of fruit and vegetables is over 400 g per day; (c) intake of saturated fats is less than 10% of total energy intake; (d) intake of trans-fats is less than 1% of total energy intake; (e) intake of free sugars is less than 10% of total energy intake or, preferably, less than 5%; (f) intake of salt is less than 5 g per day. (WHO September 2015.Fact Sheet on Healthy Diet. Fact sheet No 394, http://www.who.int/mediacentre/factsheets/fs394/en/).

According to this, solutions for positive change in food systems should address the :

- production, availability, accessibility and affordability of a variety of cereals, legumes, vegetables, fruits and animal source foods, including fish, meat, eggs and dairy products;
- enabling of diets containing adequate macronutrients (carbohydrates, fats and protein), fibre and essential micronutrients (vitamins and minerals), and

- providing foods and healthy diets that are produced in a sustainable way.

On the other hand, these solutions should include measures to restrict the production, availability, accessibility and promotion of food products leading to excessive intake of energy, fats, sugars and Department of Nutrition for Health and Development | World Health Organization | 20 Avenue Appia | 1211 Genève 27 | Switzerland salt/sodium. WHO September 2015. Fact Sheet on Healthy Diet. Fact sheet No 394, , http://www.who.int/mediacentre/factsheets/fs394/en/).

5. **We would welcome the approach of considering different types of evidence and using modelling to identify the suitability of interventions to re-shape the food systems.**

In this regard the collaboration that WHO has with the Organization for Economic Collaboration and Development (OECD) looking at the economic modelling of changes in the food system to implement WHO recommendations on specific elements related to healthy diet, for example on sugar and fat intake and looking at the economic feasibility in different regional contexts, might be relevant and could contribute to the HLPE report.

6. **Furthermore, we like to underline the importance of taking a broad and intersectoral approach, as the HLPE report addresses the nexus between agriculture, food, nutrition and health.**

With this regard, we would like to refer to the Global Action Plan for the Prevention and Control of Noncommunicable Diseases (NCDs) and the policy options and interventions that are recommended for the achievements of the outlined objectives. WHO is currently undertaking an update of these recommendations in light of new scientific evidence and will publish the update as part of the EB140 documentation end of 2016. This timeline fits the timing of the HLPE report and important new insights on the demand side elements of the food system could be fed into the HLPE report. We would like to draw the attention especially towards the effectiveness of certain policies to shape consumer choices for example through labelling of products, and through different types of financial instruments. (World Health Organization. 2013. Global Action Plan for the Prevention and Control of Non-communicable Diseases. Geneva). WHO 2016. EB138/10: Prevention and control of noncommunicable diseases: responses to specific assignments in preparation for the third High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable diseases in 2018).

Especially worrying is that childhood obesity is reaching alarming proportions in many countries and poses an urgent and serious challenge to health and development. To address this, the WHO Commission on Ending Childhood Obesity (ECHO) has produced a report specifying which approaches and combinations of interventions are likely to be most effective in tackling childhood and adolescent obesity in different contexts around the world. The Commission report's recommendations, that will be conveyed to the World Health Assembly in May 2016, are a valuable reference for the HLPE report. The ECHO report proposes a range of recommendations for governments aimed at reversing the rising trend of children aged under 5 years becoming overweight and obese. The ECHO report refers to six main action areas including comprehensive policy measures and programmes that promote the intake of healthy foods and reduce the intake of unhealthy foods and sugar-sweetened beverages by children and adolescents (through, for example, effective taxation on sugar-sweetened beverages and curbing the marketing of unhealthy foods). WHO. 2016. Report of the Commission on Ending

Childhood Obesity. Available at http://apps.who.int/iris/bitstream/10665/204176/1/9789241510066_eng.pdf?ua=1 In this context, we would like to emphasize the need to address infant and young child nutrition, including exclusive breastfeeding and timely and adequate complementary feeding with continued breastfeeding. Healthy diet and adequate nutrition start early in life, and are crucial to ensure good physical and mental development and long-term health. With this regard, we like to stress the Department of Nutrition for Health and Development | World Health Organization | 20 Avenue Appia | 1211 Genève 27 | Switzerland importance of breastfeeding for fostering growth and improving cognitive development, and possibly having long-term health benefits, like reducing the risk of becoming overweight or obese and developing NCDs later in life.

In this context it is important to identify and address the relevant food system elements and in particular the policies shaping the food environment of young children to enable adequate infant and young child nutrition. Important are, in particular, the International Code of Marketing of Breast-milk Substitutes (WHO 1981 and subsequent WHA resolutions), the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (1990), and provided guidance on ending the inappropriate marketing of foods and non-alcoholic beverages to children (WHO 2010). WHO 2012. Comprehensive implementation plan on maternal, infant and young child nutrition. Available at: http://www.who.int/nutrition/publications/CIP_document/en

7. Country case studies are an extremely valuable approach as real life examples should enrich the HLPE report.

There is a great leadership expressed by many countries to share experience so that we can see real changes in the food systems that are resulting out of selected policy measures and their feasibility and impacts. Particularly, we would like to suggest including the example of Mexico and its initiative on taxing sugar sweetened beverages, and the example of Ecuador and its labelling systems. We would like to make reference also to the UNSCN work on investments for healthy food systems, where a lot of experience was gathered from countries. (UNSCN 2015: Investments for a healthy food system).

8. The global food system is challenged by climate change and environmental degradation.

The global food system, from fertilizer manufacture to food storage and packaging, is responsible for up to nearly 30 percent of all human-caused greenhouse-gas emissions, according to estimates from the Consultative Group on International Agricultural Research (CGIAR) (Climate Change and Food Systems. Annual Review of Environment and Resources. Vol. 37: 195-222 (Volume publication date November 2012). On the other side, climate change affects production and productivity, and this directly affects diets and nutrition, smallholder farmer incomes, as well as food price volatility. A transformative shift towards healthier diets provided by sustainable food systems has to be part of the solution. The HLPE report should take into account this urgent need to shift towards more sustainable food systems by addressing what this means in terms of sustainable food production and consumption practices. Agreement on shared principles of sustainability in promoting healthy diets is needed, and this will require policy coherence among the environment, agriculture and food and health sectors. (UNSCN

/UNEP/IUNS/WHO 2015. Sustainable food systems and health. The convenient truth of addressing climate change while promoting health)

9. **In addition, we would expect the report to clearly address the role of the different actors in the food system and to send a signal to the private sector, to capital markets, to research and development for their contributions to accelerate the shift / reshaping of our food systems into sustainable food systems that provide and enable healthy diets for all.**

   We like to underline the particular role of the private sector with regard to reshaping the food systems. As outlined on the ECHO report (WHO 2016), the private sector is not a homogeneous entity. It includes among others, the agricultural food production sector, the food and non-alcoholic beverage industry, retailers, catering companies, advertising businesses and the media. It is, therefore, important to consider those entities whose activities are directly or indirectly related to food and beverages for human consumption and nutrition, especially with impacts on the increasing trends of overweight and obesity either positively or negatively. Countries need to engage constructively with the private sector to encourage implementation of policies and interventions. Department of Nutrition for Health and Development | World Health Organization | 20 Avenue Appia | 1211 Genève 27 | Switzerland Private sector needs to be hold accountable for their support towards the production of, and facilitated access to, foods and non-alcoholic beverages that contribute to a healthy diet.

10. **Finally, we would like to encourage the HLPE team to also address the issue of potential impact assessment of policy tools on nutrition.**

    With this regard we like to refer to the work the UNSCN has started on a Nutrition Impact Assessment tool (http://www.unscn.org/en/second_international_conference_on_nutrition/icn2_followup.php). This could be the basis not only for a potential tool how nutrition could be mainstreamed in CFS work, but also how governance could screen their policy measures for potential impacts on nutrition. Finally, to truly move towards sustainable and healthy food systems, the HLPE report would need to address how to establish a process throughout which over the next 5 to 10 years, or even longer, we will be able to truly progress and track progress on the reshaping of our food systems. For that we need a transparency of measurement of progress with milestones and predictable long-term targets. We hope that the HLPE report will contribute to establish the needed multisectoral dialogue to engage in this process.

    FAO/WHO Second International Conference on Nutrition (2014) Conference Outcome Document: Framework for Action. Rome, 2014. http://www.fao.org/3/a-mm215e.pdf

    FAO/WHO. 2014. The ICN2 Framework for Action- Secretariat's Information note (Framework for Action- Secretariat's Information note. Available at http://www.fao.org/about/meetings/icn2/preparations/document-detail/en/c/266592/).

    FAO (2008) Climate Change and Food Security: A Framework Document. Rome: FAO, 2008.

    FAO/UNEP, 2014. The FAO-UNEP sustainable food systems programme. http://www.fao.org/fileadmin/templates/ags/docs/SFCP/Flyer_EN_01.pdf

    World Health Organization (2015) Overweight and obesity fact sheet N°311 http://www.who.int/mediacentre/factsheets/fs311/en/, accessed 29 November 2015

WHO September 2015.Fact Sheet on Healthy Diet. Fact sheet No 394, http://www.who.int/mediacentre/factsheets/fs394/en/

World Health Organization. 2013. Global Action Plan for the Prevention and Control of Non-communicable Diseases. Geneva).

WHO 2016. EB138/10: Prevention and control of noncommunicable diseases: responses to specific assignments in preparation for the third High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable diseases in 2018.

WHO. 2016. Report of the Commission on Ending Childhood Obesity. Available at http://apps.who.int/iris/bitstream/10665/204176/1/9789241510066_eng.pdf?ua=1

WHO 2012. Comprehensive implementation plan on maternal, infant and young child nutrition. Available at: http://www.who.int/nutrition/publications/CIP_document/en/

60. Eric Verger, Nutripass, IRD/UM/SupAgro, France

Note from the research unit "Food and nutrition research in the global South" (Nutripass)

Institut de Recherche pour le Développement (IRD) / Université de Montpellier / SupAgro Higher School of Education in Agricultural Science, Montpellier, France

Focus on the metrics

We thank the CFS and the HLPE for this e-consultation in preparation of the report on Nutrition and Food Systems. Considering the purpose of the report, the Project Team's experts will have to face a very heterogeneous literature with different indicators, units of analysis, outcomes and levels of representativeness. Therefore we invite the Project Team's experts to pay special attention to metrics and carefully consider their definitions, scope, strengths and weaknesses. To illustrate our point, we will take the example of the challenge of studying nutrition outcomes at different units of analysis: household and individual-level.

The pathway between household and individual-level is complex and may vary according to the region, composition of the household and food insecurity level. For example, in Northern Ghana where extended households are comprised of several nuclear family units, it was found that distribution of food was more favorable for children of the head of the extended household than for children of other family units (1). In South Asia, numerous studies found that male family members received more nutritious food than women (2). Due to this risk of asymmetric intrahousehold distribution of food, household-level dietary outcomes cannot adequately reflect nutritional status of household members and great caution should be taken when interpreting studies with household and/or individual-level data.

A first example relates to a publication by our group where we studied the relationship between the use of supermarkets in the Greater Tunis and diet quality as measured by the Diet Quality Index-International (3). We found an improved diet quality among regular supermarket users but, as only the

diet quality of the person in charge of food shopping was assessed and linked to the household food supply, it would have been inappropriate to generalize our results to all household members.

Another example relates to the metrics of dietary diversity which are defined as the number of food items or food groups consumed by an individual or household in a given period. Indicators of dietary diversity were developed because simple measures of access to food or dietary quality were lacking. The indicators were validated (4-6) and WHO (6), FANTA (7) and FAO (8) published guidelines to help standardize these metrics. An indicator of women's dietary diversity was validated recently (9). In the global debate on nutrition-sensitive agriculture, a growing literature addresses the complex linkages between agriculture and nutrition in rural areas of developing countries (10-16). These studies use metrics of dietary diversity at either household or individual level but some of them confuse these different levels (12,13). While both these levels of dietary diversity are assessed in a somewhat similar way, their significance differs notably. The household-level dietary diversity is a proxy indicator of household economic access to food whereas the individual-level dietary diversity is a proxy indicator of micronutrient adequacy of the diet (4-9). Because of potential asymmetric intrahousehold distribution of foods, the household-level dietary diversity cannot be used as an indicator of individual food consumption and even less as an indicator of the nutritional status of household members.

Once again, we invite the Project Team's experts to be especially cautious when reviewing studies that address linkages between any element of food systems (e.g. supermarket use or agriculture) and nutrition. Appropriate use of the metrics should be rigorously evaluated, and separate analysis of the results and conclusions should be considered according to whether the household or the individual-level were studied. Moreover, beyond the question of the unit of analysis, the Project Team's experts should consider issues of the type of dietary assessment method used, the relevance of the metrics chosen, and their comparability and standardization.

References

1. Leroy JL, Razak AA, Habicht JP (2008) Only children of the head of household benefit from increased household food diversity in northern Ghana. J Nutr 138(11):2258-63.
2. Haddad L, Pena C, Nishida C, Quisumbing A, Slack A (1996) Food security and nutrition implications of intrahousehold bias: a review of literature. FCND Discussion paper 19. Washington, DC: International Food Policy Research Institute.
3. Tessier S, Traissac P, Maire B, Bricas N, Eymard-Duvernay S, El Ati J, Delpeuch F (2008) Regular users of supermarkets in Greater Tunis have a slightly improved diet quality. J Nutr 138(4):768-74.
4. Hoddinott J, Yohannes Y (2002) Dietary Diversity as a Household Food Security Indicator: Technical Appendix. Washington, D.C.: FHI 360/Food and Nutrition Technical Assistance project.
5. Arimond M, Wiesmann D, Becquey E, Carriquiry A, Daniels MC, et al. (2010) Simple food group diversity indicators predict micronutrient adequacy of women's diets in 5 diverse, resource-poor settings. J Nutr 140(11): 2059S–2069S.
6. WHO (2010). Indicators for assessing infant and young child feeding practices. Part 2: measurement. World Health Organization, Geneva.

7. Swindale A, Bilinsky P (2006) Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide (v.2). Washington, D.C.: FHI 360/Food and Nutrition Technical Assistance project.
8. FAO (2011) Guidelines for Measuring Household and Individual Dietary Diversity (Food and Agriculture Organization of the United Nations, Rome).
9. Martin-Prével Y, Allemand P, Wiesmann D, Arimond M, Ballard T, *et al.* (2015) Moving forward on choosing a standard operational indicator of women's dietary diversity (Food and Agriculture Organization of the United Nations, Rome).
10. Zezza A, Tasciotti L (2010) Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries. Food Policy 35: 265–73.
11. Jones AD, Shrinivas A, Bezner-Kerr R (2014) Farm production diversity is associated with greater household dietary diversity in Malawi: Findings from nationally representative data. Food Policy 46:1–12.
12. Leonardo WJ, Florin MJ, van de Ven GWJ, Udo H, Giller KE (2015) Which smallholder farmers benefit most from biomass production for food and biofuel? The case of Gondola district, central Mozambique. Biomass and Bioenergy 83: 257-68.
13. Sibhatu KT, Krishna VV, Qaim M (2015) Production diversity and dietary diversity in smallholder farm households. Proc Natl Acad Sci U S A 112(34):10657-62.
14. Herforth A (2010). Promotion of traditional African vegetables in Kenya and Tanzania: A case study of an intervention representing emerging imperatives in global nutrition. PhD Thesis, Cornell University.
15. Keding G, Msuya J, Maass B, Krawinkel M (2012) Relating dietary diversity and food variety scores to vegetable production and socio-economic status of women in rural Tanzania. Food Security 4(1): 129–40.
16. Kumar N, Harris J, Rawat R (2015) If They Grow It, Will They Eat and Grow? Evidence from Zambia on Agricultural Diversity and Child Undernutrition, The Journal of Development Studies, 51:8, 1060-1077.

61. Sylvie Avallone, SupAric Verger, Nutripass, IRD/UM/SupAgro, France

Note by Sylvie Avallone on "Food systems and nutrition"

SupAgro International Center for Higher Education in Agricultural Sciences

Nutripass Research unit "Food and nutrition research in the global South"

(*Institut de Recherche pour le Développement / Université de Montpellier / SupAgro)*

Focus on production and processing

Thanks to the HLPE steering committee for this interesting initiative on Food systems and nutrition. In the context of sustainable development, an important challenge is to find a balance between increasing agricultural productivity, environmental outcomes and human welfare. The best way of preventing nutritional disorders is to ensure consumption of a balanced diet to fullfil requirements in all essential nutrients. This is not achievable everywhere because of environmental constraints, social inequities, limited access to nutrient-rich food and dietary habits. A food system includes all stakeholders and infrastructures involved in feeding a population at a territory or national scale. As food systems greatly differ according to agroecological areas within a country, we invite the Project

Team's experts to carefully define the scale they will use to highlight the relationship between food systems and nutrition. The territorial scale is more relevant for nutrition assessment.

In the past century, agriculture has increased productivity through mechanization, fertilization, pesticides, and selective breeding. In low income countries, many agricultural projects aimed to improve food security and nutrition. However, evidence is lacking that these interventions have had an impact on the nutritional status. A decline in food nutrient content was attributed to a dilution effect due to varietal selection mainly based on yield. Furthermore, intensification of cash-crop production and conventional agriculture with chemical fertilizers and pesticides impair local resources (soil fertility, biodiversity). Meanwhile, organic farming and agroecology are attracting more interest. The Project Team's experts should make a synthesis of the current debate on agriculture to highlight how farmers can produce more nutrient-rich-food while preserving the environment.

Depending on the type of food system, processing is done at household, small scale or industrial level. The first purpose of processing is to stabilize the food products with post harvest technology which contributes to food security. Worldwide, trends indicate an increasing contribution of processed foods to the diet diversity of consumers. Epidemiological studies have demonstrated that the consumption of ultra-processed food is associated with a higher prevalence of obesity and metabolic diseases. Food industry has the potential to improve nutrient profiles or physiological performance of processed food with reformulation, fortification, and functionalization strategies. However, most large food industries manufacture ultra-processed foods which provide nutrients which consumption should be limited (fat, salt and sugar). When consumed inappropriately or at inordinately high proportions of a total diet, ultra-processed foods are deleterious to health. Food fortification has a special place is the debate. Food fortification with vitamins and minerals was implemented on large scale because it can yield rapid nutritional and health effects on consumers. But it does not generate income and empowerment of vulnerable populations. Again, the Project Team's experts should make a synthesis on how small processors and the food industry could contribute to build sustainable food systems more sensitive to nutrition outcomes.

To develop food systems sensitive to nutrition issues, actionable solutions have to be identified with a systemic approach and scaled up. Knowledge gaps still exist between the actions of each stakeholder and nutrition outcomes. Researches on metrics and pathways need to be further developed. According to the literature, market development of nutrient-rich food and of diversified productive systems including local smallholders is a promising strategy in terms of food security and development. In low-income countries, capacity building of farmers, cooperatives, small processors, government and civil society is still key to providing stakeholders equal opportunities to participate in the debate at national and international level. The stakeholders are interdependent and constructive discussions have to be scheduled in the political agenda to empower local communities and social groups (farmers, women) and better share the added-value of food systems.

62. Massimo Iannetta, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy

The report tackles issues, which are definitely very relevant and need to be properly addressed by the various stakeholders in food systems. The proposed mixed approach, containing both evidence-based and theoretical elements present further point of interest. The report also aims at addressing the economic, social and environmental sustainability challenges of food systems and their relation to nutrition.

However, the questions considered look too generic and, depending on interpretation, perhaps too ambitious. Food systems are going to be examined in terms of food chains from farm to fork. This certainly implies that food systems will be differentiated by different means for producing, distributing and consuming food. Dynamical aspects of food systems are also addressed within the report's issues. This could imply considering change in relationships among food system stakeholders, as well as between food systems and the environment, but it is not really clear. It is also not clear how the more broad issues of food systems sustainability are going to be considered. In fact the expected results of the report concern identifying the critical linkages between food systems and nutrition and proposing concrete actions toward better nutritional outcomes.

Nevertheless, analysing in a systematic way the relations between diverse food systems and nutrition and taking into consideration different production, distribution and consumption modalities within food chains, could provide a way forward also in tackling the sustainability questions. The report's outcomes could be particularly relevant in the context of comparative studies of environmental performance of human diets done from farm-to-fork perspective. At present, in such studies diets are considered only in relation to the (average) products from which they are composed, while those products are delivered by the same fixed food systems. Such analyses are often limited to food systems, which deliver on economy of scale objectives, while not addressing the issue of food system diversity.

Therefore the report could potentially provide valuable knowledge, which could be useful in considering diversity in food systems when designing options for improving food systems sustainability.

63. Roger Gilbert, Milling and Grain magazine, United Kingdom

As publisher of the oldest, still-in-print magazine servicing the milling industry globally (we were founded in June 1891 and celebrate 125 years old this year), I feel complelled on behalf of all previous publishers and editors of this long-standing journal to speak out on how the milling industry might assist in meeting the food demands of a growing world population and reduce malnutrition and hunger.

I served as the Secretary General of the International Feed Industry Federation (which I co-founded in 1987) for 22 years until 2010. I was instrumental in formulating and establishing the cliche that the world would need 'to feed 9.5 billion people by 2050' in the early 1990s, after studying US Bureau of Statistics data that showed a plateauing of population increases beyond 2050 and for the rest of the millennium.

Cereals are essential to human life and today wheat alone accounts for every seventh calorie we consume. Domesticated livestock are not consuming crops and other vegetable matter that we would happily eat - on the contary, they take by-products from all kinds of industries including the food industry and transform them into valuable protein foodstuffs which we enjoy eating and allow us to reach our genetic potential both physically and mentally. For example, just 10 US biscuit-making companies produce by-product that when processed correctly provides over one million tonnes of valuable protein and energy rich ingredient for livestock feeding!

My point is that the feed indstry can, if provided with the right support, meet the challenge of feeding the world's hungry of today and satisfy the demand of future mouths through providing the necesary meat, milk, eggs and fish required that is both safe and affordable.

Please review my short pdf presentation attached (http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/A%20Robust%20Feed%20Industry_0.pdf) that explaiins my considered reasoning on a way forward in meeting the challenge 'to feed 9.5 nbillion people by 2050' in the context of your request for feedback, views and comments for the Committee on World Food Security (CFS) report on 'Nutrition and Food Systems' through the High Level Panel of Experts (HLPE). Thankyou.

Yours sincerely
Roger Gilbert
Publisher - Milling and Grain and International Aquafeed magazines

64. Donald More, Global Dairy Platform, USA

Global Dairy Platform commend the CFS and HLPE for the approach with this initiative. We believe that providing nutritional security, improving sustainability and reducing the risk of diseases related to poor quality diets will be the defining issues of the 21st Century.

GDP leads the development of a collaborative, unified approach on common dairy industry issues and the nurturing of innovative research so that consumers value milk and dairy products as naturally nutritious, enjoyable and an essential part of a healthy diet. Our membership of CEOs, executives and researchers from corporations, communication and scientific bodies work in partnership to align and support the dairy industry in the promotion of sustainable dairy nutrition.

In the coming decades, a growing and increasingly affluent global population will demand a greater quantity, variety and nutritional value of food than the world has ever produced before. (Putting the New Vision for Agriculture into Action: A Transformation Is Happening. A report by the World Economic Forum's New Vision for Agriculture initiative). NGO's and world bodies are recognizing the importance of agricultural biodiversity in defining a sustainable food system and diets. While such recognition is encouraging, the fact is that there is little evidence based knowledge on sustainable food systems and diets to build recommendations and policy upon. It is important to note that changes in one part of the food system will have consequences (intended or unintended) in other parts of the food system, thus the critical requirement for adequate research data.

This creates a potential scenario where, in the rush to promote specific recommendations, incomplete science or poorly constructed research is used. History has shown that conclusions drawn from such research can create unintended consequences for public health, economic resilience, livelihoods and environmental tradeoffs. Sustainability is about finding the balance.

With the knowledge base of sustainable food systems in its very early stages, we encourage the HLPE to identify and recognize the gaps in current research and to adopt a process that ensures that decisions impacting policy are based on complete, well-designed, evidence-based research. Where evidence is missing, incomplete or poorly constructed that recognition is given to the work that needs to be undertaken before conclusions can be reached.

In 2014, an interdisciplinary consensus committee hosted by the United States Institute of Medicine (IOM) examined the interdependencies of a sustainable food system. In early 2015 the IOM released a report detailing conclusions from that committee. The report, entitled "A Framework for Assessing Effects of the Food System.", compared different food systems and suggested that when evaluating food systems consideration must be given to not only human and environmental health, but also social and economic factors. (IOM 2015 A Framework for Assessing Effects of the Food System

http://iom.nationalacademies.org/Reports/2015/Food-System.aspxDaly's) The report concluded that a framework is needed, encourages inter-disciplinary research and that conclusions at this time are not prudent. We would encourage a framework and lens of questions that span social, economic, environmental mitigation and adaptive frameworks for food systems.

The Sustainable Development Goals is a starting framework for sustainable food systems. The dairy sector contributes more than just nourishing foods to the world's population. Every day, the lives of nearly one billion people globally are sustained through contact with the dairy sector in rural communities in all corners of the world. Families find daily nourishing strength and maintain positive health. Women are empowered and children receive adequate nutrition for learning and achieving their potential. Family farmers care responsibly for livestock and strive to make their land better for future generations.

In particular, dairy uniquely provides for billions of people to receive important nutritional benefits from consuming milk and dairy products. Dairy foods nutrient-rich packages provides not just basic nutrition but better nutrition. Ongoing research continues to provide a deeper understanding of the nutritional value people get from food.

The dairy sector is essential to growing inclusive and transformative economies. The dairy sector makes an impact on improving livelihoods and social inequity through the social fabric of rural communities. Diary has an active role in alleviating poverty and unemployment. It also acts as an economic multiplier in rural economies as dairy acts as an enabler of agriculture. Of particular importance to traditional disadvantaged segments of society-small landholders, landless laborers and women, dairy can provides a transformative economic solution. There are approximately 121 million dairy farms in the world today, supporting a long tradition of milk production through cooperative structures or selling directly for consumption. Globally, there are approximately 600 million family members living on dairy farms, caring responsibility for livestock and tending to land management. In addition there are a further 400 million additional family members supported by the jobs that are created "downstream" such as milk collection, processing and retail.

Dairy products can enable and support the foundations for food security and peace. Milk product and consumption are the most important stable resources of year round cash flow and nutritional intake for rural populations. Families, and specifically women, are empowered by their social responsibility for cattle rearing and dairy production, resulting in food security at both the household and national level and income for farmers. Diary as an income generation tool can provide affordability and contribution for the basic necessities - food, water; shelter and clothing - of life.

Climate adaptive agriculture is ever more imperative and the dairy cow is uniquely suited to cycle carbon while producing nutrient dense foods. Yield improvements, feed efficiencies, use of human food by-products and manure use can help better contribute to food systems not only for dairy but for the rest of agriculture. Frequently, dairy farmers are not just dairying but also farming other forms of agriculture to cycle nutrients of feed, fiber, and nutrients. Mitigation and adaptation is recognized within the global dairy industry who have developed the Global Development Agenda for Action Sustainability Framework. The framework categorizes 11 continuous improvement areas. Currently 17% of the global milk production, over half a million farmers and nearly 18 million cows participate in the framework.

We again thank the panels for providing broad thought provoking questions and hope that the panel will encourage an inclusive and diverse approach to developing a framework for the discussions. We

have attached a compendium of research we have tracked on the topic to help the panel's research library. Below please find our specific comments on the thoughts raised:

- What are the links between diets, consumption and consumer habits and food systems?

· GDP agrees with the framework described in the IOM report referenced earlier and the importance of interdisciplinary thinking and research. To address the links between diet and health, we also would recommend that the HLPE explore current reliable science based indicators on human health, and believe that Disability Adjusted Life Years may represent the best approach of examining the intersection between nutrition and the environment on health. (Stylianou et al., 2015. A life cycle assessment framework combining nutritional and environmental health impacts of diet: a case study on milk. International J or LCA, 2015). We would encourage the HPLE research teams to continue to invest in research that identifies validated indicators that bridge nutrition and environmental impacts on health.

- What are the determinants of the changes in consumption?

· All foods can fit into a healthy, sustainable diet. We must be mindful of whole patterns of balanced eating as opposed to focusing solely on limiting or encouraging one type of nutrient, food or food group in the diet for either nutritional or environmental purposes.

· Overconsumption, in general, continues to be a problem throughout the world and contributes to the obesity epidemic. Additionally, food waste is a major problem in developed nations. We recommend that attention be given to helping to reduce both overconsumption and food waste.

· When making recommendations, we need to be careful to not pick foods and recommendations that could have profound impact on the environment because of their limited availability and trade-offs. We need to make the most of available foods and be mindful of recommendations that could have trade-off implications. With diets, a reduction or recommended substitute usually means an increase in consumption of another food sources. Having the discussion of trade-offs and striving to avoid unintended consequences is important. For example, making recommendations to consume more fish could have unintended consequences if the entire food system is not considered. For example, is there enough fish available to meet population-wide recommendations? What is the environmental impact of overfishing? Will those who do not eat fish regularly begin eating fish? Will increasing fish availability lead to more food waste? These questions, and more, need to be considered before making blanket recommendations to either increase or decrease the consumption of different food groups.

· Economics will play a larger role in food systems and dietary patterns as a rising global middle class emerges.

· Another example that shows the importance of multidimensional decision making is the drawback of recommending foods based on a single sustainability indicator such as carbon emissions and not considering, for example, the nutritional benefit contributed to the diet (What Current Literature Tells Us about Sustainable Diets: Emerging Research Linking Dietary Patterns, Environmental Sustainability, and Economics. Adv Nutr. 2015 Jan; 6(1): 19–36. Nancy Auestad and Victor L Fulgoni, II).

Many existing research papers have taken this approach, but as noted by the following research, this approach can lead to flawed recommendations.

"The carbon footprint, estimated through GHGEs, has become an important criterion for assessing the environmental sustainability of alternative diets. In the current analyses, sweets, syrups, and soft drinks were associated with lowest GHGEs whether expressed per calories or per grams. However, even though sugar and sweets may have a low environmental impact, they cannot be viewed as the most-sustainable foods because the FAO definition of sustainable diets makes a direct reference to population well-being and health (2)." (Adam Drewnowski, Colin D Rehm, Agnes Martin, Eric O Verger, Marc Voinnesson, and Philippe Imbert Am J Clin Nutr 2015;101:184–91.)

· Energy and nutrient density of foods in relation to their overall carbon footprint is needed, but also environmental considerations such as carbon cycling, soil, water use and quality and biodiversity. Thus a framework or multidimensional model approach is needed.

- How to build on the diversity of the existing food systems?

· Continue to encourage investment in the farming community and the farming system.

· Invest in improving the infrastructure required to produce, transport, and store food.

· Recommend and consider the global interconnectedness of the food system. Consideration needs to be given to global trade. Food based recommendations will need to consider the reliance of countries on imports and economic volatility related to price and climate shocks. Special attention will need to be given on climate change adaptation strategies for growing and sourcing food. Investment of food resources and infrastructure need to be diverse and non-speculative.

· Embrace the complexity. The panel should be careful to not oversimplify the impact of cultural elements on food choices.

- What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

· Solutions should be developed and evaluated for both developed and developing economies.

· In general recommendations to reduce both food waste and overconsumption will have beneficial impacts on the environment, economy and overall health.

· Encouraging responsible financial investment in the food sector. Currently, investments in the food and agriculture sector are limited due to the volatility of food commodities and global economic climate. While an increase in investment is needed, it must be non-speculative and made with responsible investment strategies to encourage sustainable growth.

· Encourage research in food loss and co-product utilization of agriculture foods. We are starting to see that many co-products in agriculture can help create more bio-based resilient products that offset fossil fuel based products. Encouraging research and innovation for climate adaptive agriculture solutions is critical.

· Advances in food technology to assist with food preservation and reduction in food losses in developing and developed countries.

· Investment and research in sustainable technologies that optimize resiliency and mitigation for growing food. Technologies should be reviewed on outcome based metrics and multi-dimensions e.g.) less inputs, improved soil, improved resiliency, less water, less carbon, improved soil and biodiversity. (ie technologies that meet a multidimensional sustainable and health improvement outcomes such as less nitrogen fertilizer and less water and improve nutrition and production efficiencies) .

· Encourage and promote accessibility to food in developing countries and in developed countries promoting investment in food deserts

· Continue to fund evidence based research on feeding people well.

· In the question posed by the panel it asks for actionable solutions from farm to fork. If we are going to start to cycle food and nutrients as part of a food system, we would encourage the panel to consider food systems that are not only farm to fork but fork to farm. Dairy uniquely can help in cycling inedible food stuffs and converting it to nutrient dense foods because the dairy cows, a ruminant animal, is able to convert the inedible foods to high quality proteins. Manure can also be a beneficial soil amendment and fertilizer. For developing worlds reduction in food waste is important but recovery through animal feeds and manure to create biogas and fertilizers can help with creating a more sustainable food systems.

- What action should different stakeholders, including governments, civil society and the private sector, take?

· We would like to encourage the panel to take a holistic approach and not demonize any one food or food group. There is more than one sustainable food system and multiple diets/food systems will be needed for people throughout the world to adapt lifestyles that benefit both the environment and human health. The panel may want to commence the project by stating that everyone should have access to healthy foods in quantities needed to sustain life.

· This is a grand challenge and, as such, everyone (e.g., industry, academics, not-for-profits, government, etc.) should be welcome at the table and help to achieve the goals. We encourage that the actions and decisions of the panel be made within the context of total food systems. The committee should work with the National Academy of Science in the United States and other agencies of comparable statue globally. We encourage the panel to create an environment where people from many disciplines can participate and collaborate. An example of a multidisciplinary research program that has been successful in driving investment in research, innovation, and information sharing is the human genome project. Given the complexity of the topic, the panel would be wise to ensure active collaboration and that the appropriate infrastructure is present to support the pursuit of sustainable nutrition.

· Finally when looking at the question of sustainable nutrition we also must remember Nutrition is a scientific discipline and sustainability is a question to examine within that discipline. Therefore we need to ensure that the right metrics for evaluating sustainability within the context of nutrition are developed and validated.

Research compendium on nutrition and sustainability

We would also like to point out a seminal document that can be used by the panel as a starting point. The report, entitled "A Framework for Assessing Effects of the Food System.", compared different food systems and suggested that when evaluating food systems consideration must be given to not only human and environmental health, but also social and economic factors. (IOM 2015 A Framework for Assessing Effects of the Food System http://iom.nationalacademies.org/Reports/2015/Food-System.aspxDaly's)

Aston LM, Smith JN, Powles JW: Impact of a reduced red and processed meat dietary pattern on disease risks and greenhouse gas emissions in the UK: a modelling study. *BMJ open* 2012, 2.

Adam Drewnowski, Colin D Rehm, Agnes Martin, Eric O Verger, Marc Voinnesson, and Philippe Imbert: Energy and nutrient density of foods in relation to their carbon footprint Am J Clin Nutr 2015;101:184–91.

Nancy Auestad and Victor L Fulgoni, II What Current Literature Tells Us about Sustainable Diets: Emerging Research Linking Dietary Patterns, Environmental Sustainability, and Economics. Adv Nutr. 2015 Jan; 6(1): 19–36.

Baroni L, Cenci L, Tettamanti M, Berati M: Evaluating the environmental impact of various dietary patterns combined with different food production systems. *Eur J Clin Nutr* 2007, 61:279-286.

Barosh L, Friel S, Engelhardt K, Chan L: The cost of a healthy and sustainable diet--who can afford it? *Aust N Z J Public Health* 2014, 38:7-12.

Berners-Lee M, Hoolohan C, Cammack H, Hewitt CN: The relative greenhouse gas impacts of realistic dietary choices. *Energy Policy* 2012, 43:184-190.

Biesbroek S, Bueno-de-Mesquita HB, Peeters PH, Verschuren WM, van der Schouw YT, Kramer GF, Tyszler M, Temme EH: Reducing our environmental footprint and improving our health: greenhouse gas emission and land use of usual diet and mortality in EPIC-NL: a prospective cohort study. *Environ Health* 2014, 13:27.

Briggs AD, Kehlbacher A, Tiffin R, Garnett T, Rayner M, Scarborough P: Assessing the impact on chronic disease of incorporating the societal cost of greenhouse gases into the price of food: an econometric and comparative risk assessment modelling study. *BMJ Open* 2013, 3:e003543.

Buzby JC, Wells HF, Vocke G: Possible Implications for U.S. Agriculture From Adoption of Select Dietary Guidelines. *United States Department of Agriculture, Economic Research Report* 2006, 21.

Capone R, Iannetta M, Bailali HE, Colonna N, Debs P, Dernini S, Maiani G, Intorre F, Polito A, Turrini A, et al: A Preliminary Assessment of the Environmental Sustainability of the Current Italian Dietary Pattern: Water Footprint Related to Food Consumption. *Journal of Food and Nutrition Research* 2013, 1:59-67.

de Carvalho AM, Cesar CL, Fisberg RM, Marchioni DM: Excessive meat consumption in Brazil: diet quality and environmental impacts. *Public Health Nutr* 2013, 16:1893-1899.

de Ruiter H, Kastner T, Nonhebel S: European dietary patterns and their associated land use: Variation between and within countries. *Food Policy* 2014, 44:158-166.

Doidge JC, Segal L, Gospodarevskaya E: Attributable risk analysis reveals potential healthcare savings from increased consumption of dairy products. *J Nutr* 2012, 142:1772-1780.

Dong-dong C, Wang-sheng G, Yuan-quan C, Qiao Z: Ecological footprint analysis of food consumption of rural residents in China in the latest 30 years. *Agriculture and Agricultural Science Procedia* 2010, 1:106-115.

Eshel G, Martin PA: Diet, Energy, and Global Warming. *Earth Interactions* 2006, 10:1-17.

Fazeni K, Steinmuller H: Impact of changes in diet on the availability of land, energy demand, and greenhouse gas emissions of agriculture. *Energy, Sustainability and Society* 2011, 1:6.

Friel S, Barosh LJ, Lawrence M: Towards healthy and sustainable food consumption: an Australian case study. *Public Health Nutr* 2013:1-11.

Gerbens-Leenes PW, Nonhebel S: Consumption patterns and their effects on land required for food *Ecological Economics* 2002, 42:185-199.

Gerbens-Leenes PW, Nonhebel S: Food and land use. The influence of consumption patterns on the use of agricultural resources. *Appetite* 2005, 45:24-31.

Germani A, Vitiello V, Giusti AM, Pinto A, Donini LM, Del Balzo V: Environmental and economic sustainability of the Mediterranean Diet. *Int J Food Sci Nutr* 2014:1-5.

Haberl H, Erb KH, Krausmann F, Bondeau A, Lauk C, Muller C, Plutzar C, Steinberger JK: Global bioenergy potentials from agricultural land in 2050: Sensitivity to climate change, diets and yields. *Biomass Bioenergy* 2011, 35:4753-4769.

Heller MC, Keoleian GA: Greenhouse Gas Emission Estimates of U.S. Dietary Choices and Food Loss. *Journal of Industrial Ecology* 2014:n/a-n/a.

Hendrie GA, Ridoutt BG, Wiedmann TO, Noakes M: Greenhouse gas emissions and the Australian diet--comparing dietary recommendations with average intakes. *Nutrients* 2014, 6:289-303.

Jones CM, Kammen DM: Quantifying carbon footprint reduction opportunities for U.S. households and communities. *Environ Sci Technol* 2011, 45:4088-4095.

Kastner T, Nonhebel, S: Changes in land requirements for food in the Philippines: A historical analysis. *Land Use Policy* 2010, 27:853-863.

Kastner T, Rivas MJ, Koch W, Nonhebel S: Global changes in diets and the consequences for land requirements for food. *Proc Natl Acad Sci U S A* 2012, 109:6868-6872.

Lloyd SJ, Kovats RS, Chalabi Z: Climate change, crop yields, and undernutrition: development of a model to quantify the impact of climate scenarios on child undernutrition. *Environ Health Perspect* 2011, 119:1817-1823.

Macdiarmid J KJ, Horgan G, Loe J, Fyfe C, Johnstone A, McNeill G: Livewell: a balance of healthy and sustainable food choices 2011.

Macdiarmid JI, Kyle J, Horgan GW, Loe J, Fyfe C, Johnstone A, McNeill G: Sustainable diets for the future: Can we contribute to reducing greenhouse gas emissions by eating a healthy diet? *Am J Clin Nutr* 2012, 96:632-639.

Masset G, Soler LG, Vieux F, Darmon N: Identifying sustainable foods: the relationship between environmental impact, nutritional quality, and prices of foods representative of the French diet. *J Acad Nutr Diet* 2014, 114:862-869.

Masset G, Vieux F, Verger EO, Soler LG, Touazi D, Darmon N: Reducing energy intake and energy density for a sustainable diet: a study based on self-selected diets in French adults. *Am J Clin Nutr* 2014, 99:1460-1469.

McCarron DA, Heaney RP: Estimated healthcare savings associated with adequate dairy food intake. *Am J Hypertens* 2004, 17:88-97.

Meier T, Christen O, Semler E, Jahreis G, Voget-Kleschin L, Schrode A, Artmann M: Balancing virtual land imports by a shift in the diet. Using a land balance approach to assess the sustainability of food consumption. Germany as an example. *Appetite* 2014, 74:20-34.

Meier T, Christen O: Environmental impacts of dietary recommendations and dietary styles: Germany as an example. *Environ Sci Technol* 2013, 47:877-888.

Pathak H, Jain N, Bhatia A, Patel J, Aggarwal PK: Carbon footprints of Indian food items. *Agriculture, Ecosystems & Environment* 2010, 139:66-73.

Peters CJ, Wilkins JL, Fick GW: Testing a complete-diet model for estimating the land resource requirements of food consumption and agricultural carrying capacity: The New York State example. Renewable Agriculture and Food Systems 2007, 22:145-153.

Peters CJ, Bills N, Lembo AJ, Wilkins JL, Fick GW: Mapping potential foodsheds in New York State: A spatial model for evaluating the capacity to localize food production. *Renewable Agriculture and Food Systems* 2009, 24:72-84.

Peters CJ, Bills NL, Lembo AJ, Wilkins JL, Fick GW: Mapping potential foodsheds in New York State by food group: An approach for prioritizing which foods to grow locally. *Renewable Agriculture and Food Systems* 2011, 27:125-137.

Popp A, Lotze-Campen H, Bodirsky B: Food consumption, diet shifts and associated non-CO2 greenhouse gases from agricultural production. *Global Environmental Change* 2010, 20:451-462.

Pradhan P, Reusser DE, Kropp JP: Embodied greenhouse gas emissions in diets. *PLoS One* 2013, 8:e62228.

Risku-Norja H, Kurppa S, Helenius J: Dietary choices and greenhouse gas emissions – assessment of impact of vegetarian and organic options at national scale. *Progress in Industrial Ecology – An International Journal,* 2009, 6:340-354.

Saez-Almendros S, Obrador B, Bach-Faig A, Serra-Majem L: Environmental footprints of Mediterranean versus Western dietary patterns: beyond the health benefits of the Mediterranean diet. *Environ Health* 2013, 12:118.

Saxe H, Larsen TM, Mogensen L: The global warming potential of two healthy Nordic diets compared with the average Danish diet. *Climatic Change* 2013, 116:249-262.

Saxe H: The New Nordic Diet is an effective tool in environmental protection: it reduces the associated socioeconomic cost of diets. *Am J Clin Nutr* 2014, 99:1117-1125.

Scarborough P, Allender S, Clarke D, Wickramasinghe K, Rayner M: Modelling the health impact of environmentally sustainable dietary scenarios in the UK. *Eur J Clin Nutr* 2012, 66:710-715.

Scarborough P, Appleby PN, Mizdrak A, Briggs ADM, Travis RC, Bradbury KE, Key TJ: Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK. *Climatic Change* 2014, 125:179-192.

Springer NP, Duchin F: Feeding nine billion people sustainably: conserving land and water through shifting diets and changes in technologies. *Environ Sci Technol* 2014, 48:4444-4451.

Stylianou et al., 2015. A life cycle assessment framework combining nutritional and environmental health impacts of diet: a case study on milk. International J or LCA, 2015; in press.

Temme EH, Toxopeus IB, Kramer GF, Brosens MC, Drijvers JM, Tyszler M, Ocke MC: Greenhouse gas emission of diets in the Netherlands and associations with food, energy and macronutrient intakes. *Public Health Nutr* 2014:1-13.

Temme EH, van der Voet H, Thissen JT, Verkaik-Kloosterman J, van Donkersgoed G, Nonhebel S: Replacement of meat and dairy by plant-derived foods: estimated effects on land use, iron and SFA intakes in young Dutch adult females. *Public Health Nutr* 2013, 16:1900-1907.

Thompson S, Gower R, Darmon N, Vieux F, Murphy-Bokern D, Maillot M: A balance of healthy and sustainable food choices for France, Spain and Sweden: WWF Report 2013.

Tukker A, Goldbohm RA, de Koning A, Verheijden M, Kleijn R, Wolf O, Pérez-Domínguez I, Rueda-Cantuche JM: Environmental impacts of changes to healthier diets in Europe. *Ecological Economics* 2011, 70:1776-1788.

van Dooren C, Marinussen M, Blonk H, Aiking H, Vellinga P: Exploring dietary guidelines based on ecological and nutritional values: A comparison of six dietary patterns. *Food Policy* 2014, 44:36-46.

Vanham D, Bidoglio G: The water footprint of Milan. *Water Sci Technol* 2014, 69:789-795.

Vanham D, Mekonnen MM, Hoekstra AY: The water footprint of the EU for different diets. *Ecological Indicators* 2013, 32:1-8.

Vanham D: The water footprint of Austria for different diets. *Water Sci Technol* 2013, 67:824-830.

Vieux F, Darmon, N, Touazi, D, Soler, LG: Greenhouse gas emissions of self-selected individual diets in France: Changing the diet structure or consuming less? *Ecological Economics* 2012, 75:91-101.

Vieux F, Soler LG, Touazi D, Darmon N: High nutritional quality is not associated with low greenhouse gas emissions in self-selected diets of French adults. *Am J Clin Nutr* 2013.

Werner LB, Flysjo A, Tholstrup T: Greenhouse gas emissions of realistic dietary choices in Denmark: the carbon footprint and nutritional value of dairy products. *Food Nutr Res* 2014, 58.

Westhoek H, Lesschen JP, Rood T, Wagner S, De Marco A, Murphy-Bokern D, Leip A, van Grinsven H, Sutton MA, Oenema O: Food choices, health and environment: Effects of cutting Europe's meat and dairy intake. *Global Environmental Change* 2014, 26:196-205.
Wilson N, Nghiem N, Ni Mhurchu C, Eyles H, Baker MG, Blakely T: Foods and dietary patterns that are healthy, low-cost, and environmentally sustainable: a case study of optimization modeling for new zealand. *PLoS One* 2013, 8:e59648.
Wolf O, Pérez-Domínguez, I, Rueda-Cantuche, JM, Tukker A, Kleijn R, de Koning, A, Bausch-Goldbohm, S, Verheijden, M: Do healthy diets in Europe matter to the environment? A quantitative analysis. *Journal of Policy Making* 2011, 33:8-28.
Zhen L, Cao S, Cheng S, Xie G, Wei Y, Liu X, Li F: Arable land requirements based on food consumption patterns: Case study in rural Guyuan District, Western China. *Ecological Economics* 2010, 69:1443-1453

65. Joachim von Braun, University of Bonn, Germany

Nutrition policy needs stronger evidence base. An International Panel for Food, Nutrition and Agriculture is proposed with the attached commentary. It can be inspred by IPCC

Proposal for an International Panel of Food, Nutrition and Agriculture (IPFNA)

Joachim von Braun, Center for Development Research, University of Bonn, Germany

Comment for CFS e-consultation January 2016

Nutrition as a global problem with its at least three dimensions of undernutrition, micronutrient deficiencies, and obesity, currently has no well-defined organizational home.

Many nation states are not capable to address the nutrition problems effectively. Scaling Up Nutrition Movement (SUN) involving more than 50 countries with the UN playing a facilitating role is a promising international effort to overcome this deficiency. More is needed and some nutrition issues need to be addressed at global level. The complex nature of the nutrition problem calls for an equally complex organizational arrangement at international level, and not just one entity to handle it all.

Food security and nutrition are increasingly knowledge intensive. An international arrangement tasked with this should be inspired by the Intergovernmental Panel on Climate Change (IPCC), but established with less transactions costs as an international or intergovernmental, entity, i.e. an “International Panel on Food, Nutrition, and Agriculture (IPFNA)”.

While the focus of INFNA for the coming two decades should relate to the SDGs (and SDG2 in particular), it must have a long-term perspective on food and nutrition related risks and challenges beyond 2030. It is essential here to apply the IPCC-type design principle to separate the provision of science-based assessments from political decision-making, where the latter should be based on facts but takes value judgements on trade-offs into account.

The proposed IPFNA mechanism should facilitate the peer reviewed assessments on food and nutrition security and agriculture for delivering evidence based analyses for action with foresight. This function

goes far beyond any of the existing science advisory bodies for policy at international levels. The whole international science system related to food and nutrition security and agriculture needs to be engaged for the purpose.

Such an institutional innovation would bring about important advantages compared to the current system, as it would 1) better reflect the diversity as well as lack of consensus in international science insights from different disciplines, and 2) may resolve key issues with new research, improve exchange and cooperation among science disciplines and research efforts at scale, as well as between science and policy domains, and 3) increase transparency in the assessment process based on rigorous peer review, and thereby increase the legitimacy of assessments and recommendations to governments and society.

Besides regular assessments on the state of international food, nutrition and agriculture research-based insights, the strength of such an institutional arrangement would be to deal with controversial assessments, for instance on nutrition interventions, market stabilization policies, innovations (potential, risks, regulation), etc. This function would have a global reach and not only focus on developing countries.

For practical purposes it would be useful to establish a high-level, broad based, legitimized time-bound international dialogue forum that addresses the organizational implications of this food and nutrition governance redesign.

Further details about the proposed International Panel are in the report by EU http://europa.eu/expo2015/sites/default/files/files/Expo-Document_1115_BD.pdf and ZEF http://www.zef.de/index.php?id=2213&tx_zefportal_publications%5Bselectedyear%5D=2015&cHash=caa4d958af1c7628eb506187d0d4ea17

66. Sidiga Washi, Sudan

Many factors have affected our diets today in the developing countries and am focusing especifically on my country which suppose to be the world food basket. A country full of fertile land and water is importing food today. Politics have very much affected our food today. Goverments abandoned agriculture and especially growing enough foods. Urbanization ate the agricultural land for building houses. Farmers left their land to cities where no one is farming. Large scale food projects were abandoned. Advanced communication technology have affected our children who demanded foods imported which is completely different from our cultural foods. Consumption patterns were worthened and chronic diseases afected younger generations as a result of improper nourishment. For poor people the situation is even worse. Food prices are rising as a results of many food retailers and middle men while incomes dicline. Micronutient deficiencies are affecting larger segment of the population and especially school children. Malnutrition coupled with natural and man-made disasters have affected many vulnerable groups such as pregnant women, under five years children and elderly. Thousands of families were displaced from their fertile lands because of wars. Climate change has affected pretty much our food production and consequently food consumption patterns. Life-Style changes in urban areas has very much affected our diets. Eating outside the home and high consumption of fast foods have an effect on our consumption patterns. Peer presure affected to a larger extend the adolescent's diet and consumption patterns. Food as a mean of socialization have an impact also on the changing dietarry patterns. What we call social foods are full of sugar and fats. Snacks are no longer fruits and vegetyables but rather cookies and soft drinks.

Nutrition related diseases are in rising with obesity becoming a public health concern and affecting the poor more as a result of high consumption of high caloric foods with low utritive value and cheap coupled with lack of physical activity and sedentery electronic games performed by children and lack of physical activity for adults too.

It is high time that stakeholders come together in a way they build effective partnership to seek solution for the above complex situation. In my opinion we need bringing back home economics to schools for both gender to set a proper base for our food consumption patterns since early in life. On the other hand food and nutrition expers should partning with each other to seek technical solution to our food system problems.

67. Ruth Xiomara Cubas, Consejo Nacional de Desarrollo Sostenible, Honduras

PREGUNTAS Y RESPUESTAS SOBRE TEMAS DE NUTRICION Y SISTEMAS ALIMENTARIOS

¿Cómo y porque cambian las dietas?

R// Cuando hablamos de dieta, se pretende que las personas, coman saludablemente y la manera de cómo y cuándo lo hacen, ya que los hábitos alimentarios juegan un rol muy importante en el cuerpo humano, las personas cambian los hábitos alimenticios pretendiendo alcanzar un peso adecuado y dejando de lado la buena alimentación, y no tomando en cuenta que los nutrientes necesarios que el cuerpo humano necesita para mantenerse saludable.

¿Cuáles son los vínculos entre dietas, consumo y hábitos de los consumidores y sistemas alimentarios?

R// El vínculo que existe lo forman los hombres y mujeres que se organizan dentro de las familias para consumir alimentos dependiendo de los diversos factores como la cultura y controlando o regulando la cantidad y tipo de alimentación que proporcionan al organismo, sin importar si cubren o no sus necesidades.

¿Cómo afectan los cambios en los sistemas alimentarios a las dietas, y por lo tanto a la salud y a la nutrición?

R// Es importante mencionar que cuando se cambian los hábitos alimentarios el cuerpo genera un déficit de calorías, grasas y nutrientes, provocando así enfermedades crónicas no transmisible y nutricionales.

¿Qué factores son determinantes para los cambios en el consumo?

- R// Determinantes Biológicos (como el hambre y el sentido del gusto)
- Determinantes económicos (el costo, los ingresos y la disponibilidad en el mercado)
- Determinantes Físicos (como el acceso, la educación y el tiempo)
- Determinantes sociales (la cultura, la familia y los patrones alimentarios)
- Actitudes, creencias y conocimiento en materia de alimentación.

¿Cómo afecta la dinámica de los sistemas alimentarios a los patrones de consumo?

R// Afecta por medio de sus impactos, ya que los cambios climáticos como las sequias se interponen en la producción de alimentos, la infraestructura de la distribución de los alimentos, llevando una crisis

tanto en zonas rurales como urbanas y de esta manera afectando la salud, y las oportunidades de subsistencia, de esta manera afectando la seguridad alimentaria.

¿Cómo conformar y creas vías hacia una alimentación sana?

R// Realizando ferias de seguridad alimentaria, fomentando una alimentación sana con actividades físicas, cambiando por medio de educación los estilos de vida saludable, realizando variaciones alimentarias ricas en nutrientes, comiendo adecuadamente , alimentos cocinados por nosotros mismos.

¿Cuál es el papel de las políticas públicas en la promoción de una alimentación sana, nutritiva y culturalmente adecuada para todos?

R// juegan un papel muy importante ya que se centran en los Elementos ideológicos y legislativos que articulan e inciden en el sistema alimentario, tomando en cuenta una relación alimentaria con la sociedad y la disponibilidad de alimentos y recursos de la población para poder adquirirlos.

¿Cómo aprovechar la diversidad de los actuales sistemas alimentarios?

R// Reduciendo la perdida y el desperdicio de alimentos

Realizando modelos de sostenibilidad de producción y consumo, conservando, creciendo y aumentando la producción agrícola al mismo tiempo que preservamos el medio ambiente, educando a la población y adaptándonos al cambio climático.

En la práctica, **¿Qué soluciones viables se pueden adoptar desde la explosión agrícola hasta la mesa, para mejorar los resultados nutricionales de los sistemas alimentarios?**

R//La mejora de los sistemas agrícolas y la bio fortificación alimentarios, fundamental para el aumento saludable de la población y el ecosistema y que todas las personas tengan un acceso físico, social y económico a suficientes alimentos inocuos para satisfacer sus necesidades alimentarias.

¿Qué medidas deberían adoptar las diferentes partes interesadas, incluyendo los gobiernos, la sociedad civil y el sector privado?

R// Incorporar en los sistemas alimentarios, incentivo al consumo y producción sostenible.

Promover mercados agrícolas y alimentos justos que funcionen adecuadamente.

Disminuir el riesgo y aumentar la capacidad de resistencia de los más vulnerables e invertir en recursos públicos y esenciales, incluida la innovación y la infraestructura.

68. Jazmine Brantley, New Mexico State University, United States of America

Regional Food Hubs as a Practical Approach to Nutrition and Food Systems from a Community Perspective

Introduction

Within the HLPE report on Nutrition and Food Systems there is a “need to understand the internal drivers of the evolution of food systems and the drivers of consumer’s choices and how both concepts play significant roles in the nutritional development of communities. Within the topics that the report should consider are:

- What are food systems?
- What are the internal and external drivers influencing the evolution of food systems?
- What are the determinants of the changes in consumption?
- What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?
- What action should different stakeholders, including governments, civil society and the private sector, take?

The report we are commenting on is based on the sustainable development Goal 2 – ending Hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. The primary purpose of this document is to not only provide expertise and feedback to the HLPE steering committee, but to also answer the following questions:

- How have external and internal forces influenced the evolution of food systems?
- How communities determine/capture the heterogeneous (food) consumption patterns?
- How can food hubs be seen as a practical approach to address these patterns?

What is a Food System?

Food systems are traceable paths that aid in the transportation of food as it travels from farm to fork (About Local Food Systems, 2013). They include all connecting and transporting activities, such as the initial production of food, its processing, value- added practices, overall consumption patterns, and ultimate disposal (What is a Food System, n.d.). Stemming back farther than agricultural practices, the presence of food systems can be traced to prehistoric times in which human civilizations lived a more hunter-gatherer lifestyle (History of Food, n.d.). A lifestyle that suggests a relatively simple food system that reflected little to no need or concern for transportation costs, marketing techniques, environmental issues, etc. Since then, food systems have not only become more complex, but have also evolved to accommodate and serve the nutritional and dietary needs of global economies, their surrounding regions, and local communities as well.

Internal and External Drivers of the Evolution of Food Systems

The influences behind the evolution of food systems include many factors such as the socio-demographic characteristics of an area and the environmental issues that must be either combated or resolved. Socio-demographic characteristics include a combination of both demographic and sociological characteristics. For example, demographic characteristics consist of characteristics referring to the age, sex, educational levels and marital status of individuals while sociological characteristics are attributed to the more objective traits of an individual – membership in organizations, household status, interests, values, and social groups (Ask, 2016). Food systems are heavily influenced and altered by the socio-demographic characteristics of individuals residing in various regions and communities. Depending on the demographic characteristics of community and their particular interests, food systems may either be changed or modified. For instance, you may encounter a community where the individuals are younger and more inclined to purchasing locally grown foods, demonstrated by their avid involvement in local farming initiatives. Because of this community's participation in the consumption of locally grown food, the current food system which

may have consisted of consuming food from surrounding areas or regions will be simplified. By encouraging community members to not only grow their own food, but also showcase support of the existing farmers by purchasing their food, trading activities with surrounding areas are decreased, thus impacting and altering food systems.

Prior to the rise in the concern for the environment, food systems activities included basic production and transportation processes, such as the disposal of waste materials and the usage of various gas exhausting vehicles. Eliminating the wastes of farming animals of oftentimes had little to no regulation as their fecal matter was disposed of throughout or near local water supply and drainage systems. As a result, the health of residents of those communities were negatively impacted. To circumvent any further issues and thwart future environmental concerns, statues and limitations were enforced, thus modifying food systems.

The same has occurred with the usage of gas-exhausting vehicles. Extreme gas- exhausting vehicles affect local regions and surrounding communities as they transport commodities and food from one destination to another. Even though these vehicles are delivering much needed commodities to those communities who need them, they are bringing pollution and a plethora of respiratory problems as well. As local communities being to grown their own crops, food, and other commodities, they will begin to decrease their chances of health issues by experiencing cleaner air. Consequently, however, food systems will be affected and will changed for those areas and the surrounding areas in which transportation took place.

What are the determinants of the changes in consumption?

Besides tastes and preferences, there are many reasons why consumers make the decisions they make. From their incomes and expectations of the market to the prices of related goods and their own personal interests, consumers pride themselves on deciding what's best for them as they make their purchasing decisions. Because of this diversity/heterogeneity of consumers in the choices they make, it is essential that economic development initiatives focus on ways in which enabling better nutritional outcomes of a diverse consumer base is actually achievable.

The expression "no size fits all" can be applied to all economic development efforts. Therefore, applying this phrase to addressing topics related to nutrition and food systems is appropriate as it manages to give the floor to communities as economic developers, city planners, and local health organizations determine their food consumption patterns.

Communities are typically groups of people "living in the same place having a particular characteristic in common" (Community, 2016). A few of the characteristics these constituents in their communities may have include their food consumption patterns; therefore, understanding how they consume, their current health statuses, risks and looming concerns, etc. is crucial. One manner in which more developed communities have been able to keep track of these characteristics labeled above includes investment in the establishment of regional hubs. Regional food hubs are "centrally located [facilities] with business management structures facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products" (Barham, 2010).

Regional food hubs focus on producing products locally. The mechanism of a regional food hub is to manage the activity of aggregation, marketing, and distribution from local producers to strengthen their ability to satisfy wholesale and retail of food products. Food hubs have been developed internationally and they are organized by state, county, and city governments; and another institution such as nonprofit organizations and food advocates.

Food hubs have a strategy to connect producers to consumers, when local farmers face challenges to market and distribute their production, the food hub provides a toll mechanism that organizes to find a new market and services for the farmers to enter into the larger markets (Wallace Center, 2014). Regional food hubs have a significant effect on the communities in economic, social and environment sector.

Economically, there is strong evidence that the growth of local food has a positive impact to the local economy, food hubs play important factors for sales performance and helping to preserve and create new jobs in the agricultural food sectors. They are also important in promoting a thriving local economy. Socially, food hubs provide healthy food production, offer business training, and supporting the new and existing project for producer. Environmentally, food hubs support the sustainability of local and regional production, reduce energy use and waste, and reduced pollution. (Aguilar 2015).

Regional Food Hubs is one of many practical approaches to address the "no size fits all" condition of nutrition and food systems in the sense that they collectively capture the food consumption patterns considering the capacities of local producers and local government initiatives.

Conclusion

The primary purpose of this document is to address the matters of food systems evolving, diverse consumption patterns within communities, and how to assess and keep track of the changing consumption patterns in these communities by establishing regional food hubs that will ultimately better the nutritional outcomes of these communities. Given these comments and suggestions, different stakeholders, government legislators, and the members of civil society can take actions by either investing substantial amounts of capital into the emergence of regional food hubs, enforce certain laws and legislative commitments advocating the implementation of regional food hubs alongside local community members teaming together to actively participate in the cultivation of the foods that are healthiest to consume. Collectively and with these efforts, food systems will be altered but for the betterment of communities locally, regionally, and globally, thus promoting Goal 2 of the Sustainable Development Goals.

Aguilar, Krysten. (2015). Creating a Regional Food Hub. La Semilla Food Center. ND. http://www.lasemillafoodcenter.org/uploads/8/4/6/8/8468672/9._creating_a_regional_food_hub.pdf

About Local Food Systems. (2013). Angelic Organics Learning Centers. http://www.learngrowconnect.org/about/local-food-systems#foodsystem

Barham, J. (2010). Getting to Scale with Regional Food Hubs. USDA Agricultural Marketing Service. http://blogs.usda.gov/2010/12/14/getting-to-scale-with-regional- food-hubs/

Community. (2016). Dictionary.com. http://dictionary.reference.com/browse/community?s=t

Food Hub Collaboration. (2015). Wallace Center Winrock International. ND. http://www.wallacecenter.org/foodhubcollaboration/

History of Food - Teaching the Food System. (n.d.). A Project of the Johns Hopkins Center for a Livable Future. http://www.jhsph.edu/research/centers-and-institutes/teaching-the-food-system/curriculum/_pdf/History_of_Food-Background.pdf

What does Sociodemographic Mean. (2016). Ask.com. http://www.ask.com/world-view/sociodemographic-mean-cc3b7119d0e7aefe

What is a Food System. (n.d.). Future of Food. http://www.futureoffood.ox.ac.uk/what-_food-system

69. Patcharin Raviyan, Chiang Mai University, Thailand

I would like to thank the HLPE Steering Commitee for giving me an opportunity to provide some comments. Please find the attachment for your consideration.

How and why do diets change? How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

Thailand has been regarded as the Land of Gourmet Food. The traditional Thai-style diet is serving rice with various dishes. However, several studies have found that during the past 20 years the consumption pattern of the Thai population has changed noticeably. It was reported that the key points that cause the diets change are social, cultural value and economic. Thai people, particularly in big city, trend to accept other gourmet food that comes its way. Delocalization and globalization trends also caused changes in Thai dietary patterns.

In big city, the online shopping and social media has developed rapidly. Technology is essential to consumers and this is an issue that will continue. The delocalization process is reflected by the acceptance of new kinds of foods, as well as dining out and ordering food through delivery services. The traditional food revival trend can be known as the reformation of Thai traditional food practices. In both countryside and urban area, it has been found a shift in the section of spending on meals prepared at home to the ready-to-eat food. As a result of this change, Thai staples and side dishes are being substituted by diets having a higher amount of fats and meat.

The economic structure has also shifted from agricultural sector to industrial sector. Most of the rural Thai or farmers can no longer live solely on their farm land. Half of their food has to be attained by purchasing. Thus, the household food purchase and individual consumption of the poorer socio-economic groups are likely influenced by food prices, household income, access to the food market, food habits and cultural restrictions, nutrition information and advertisement, tastes and preferences. This situation does not support an adequate consumption of healthy diet.

In considering the diet-related degenerative diseases during the past 20 years, the occurrence of overweight and obesity among kids and young people has increased profoundly. The problem is more obvious in kids from private schools and urban areas than in those from public schools or rural communities. For adults, the problem of overweight and other risk issues for cardiovascular disease have increased considerably.

It is also observed that men and women have their own believes. The young female adolescents and adults are taking upon the idea that good-looking women should be thin. This attitude results in the unhealthy consumption behaviors

What action should different stakeholders, including governments, civil society and the private sector, take?

These changes should be adjusted through proper behavior alteration and the campaign of suitable eating practices. The government should use their authority to regulate schools to provide nutritious foods appropriate for their students. School should provide student with guidelines/activities or lessen for eating healthy food and having age-appropriate eating lifestyles. Activities related to healthy food consumption such as fish/chicken farming or growing organic vegetables at school and using these raw materials for school meals should be encouraged. The public health sector should educate parents about the nutritious food choices. In addition, social media should take responsibility in this national problem by creating the proper program/advertisements for healthy eating diets as social media continues to influence consumers' buying habits,

How to build on the diversity of the existing food systems?

Wild edible plants as well as edible insects are abundant and diverse in Thailand. They could provide food and nutrients to local people. Fish is also one of the best healthy foods. Meals made from the wild edible plants, edible insects and fish should be promoted to diversify the current food schemes.

What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

To ensure safety and healthy from farm to the folk that support better nutritional outcomes of food systems, implementation of the Good Agricultural Practice (GAP) in the farms, application of the Good Hygienic Practice (GHP) in food services and using the Good Manufacturing Practice (GMP) in industrial food production are all encouraged.

References:

1. Cosmopolitan food beliefs and changing eating habits in Bangkok" dissertation by Chulanee Thianthai (http://202.28.199.34/multim/3095277.pdf).

2. The nutrition and health transition in Thailand. 2002. Vongsvat Kosulwat. Public Health Nutrition: 5(1A), 183–189 (http://www.cpc.unc.edu/projects/nutrans/research/bellagio/papers

/PHNThailand-Vongsulvat.pdf).

70. Andrea Sonntag, Welthungerhilfe, Germany

Welthungerhilfe welcomes the opportunity to comment on the Issue Note prepared for the HLPE report on Nutrition and Food Systems. Please find below our comments on the draft:

- The assessment of "the influence of various types of food systems on diets, nutrition and health" should be informed by human rights standards and principles, particularly the right to adequate food. Also, the question if a particular food system responds to the needs and aspirations of the people should be considered.

- Regarding the Sustainable Development Goals the report should not only refer to Goals 2 and 13, but take into account the crucial interlinkages of goals such as Goal 1, 3, 4, 5, 6, 12 with nutrition.
- The analysis of the root causes of malnutrition, apart from its social, environmental and cultural determinants, should also include its political determinants, particularly power imbalances between different actors. At the global level, this would mean to analyze e.g. the influence of international trade rules on food systems.
- In its aim to build "upon multiple sources of evidence, not only academic but also experiential knowledge" the report should particularly take into account traditional knowledge from food production to consumption. It should also assess trends in research on Nutrition and Food Systems (e.g. regarding focus, funding and gaps).
- A cost-benefit analysis of effective food system interventions need to factor in the environmental and social impacts of the different types of food systems which is crucial in terms of their sustainability in the future. The analysis should also cover different policy interventions (e.g. incentives or regulations to foster healthy diets).
- The report should also analyze the evolution of the current global nutrition governance and roles of the different actors who are involved.
- When it says in the Issue note "The report should […] elaborate on concrete solutions to ensure that food systems deliver better nutritional outcomes, in order to propose concrete actions elicited from all stakeholder groups – farmers, processors, retailers, consumers, governments and other public actors – to reduce the triple burden of malnutrition" it should not exclude the powerful role of those at the very first stage who provide inputs for food production (e.g. seeds, fertilizer, pesticides).
- Although the interlinkages between food systems and nutrition are at the focus of the report, the report should acknowledge that health systems are another important determinant for nutrition.

71. Lily Dora Nunez de la Torre Caller, Peru

ASPECTOS PARA LA EVALUACIÓN DE LA INFLUENCIA DE LOS DIVERSOS TIPOS DE SISTEMAS ALIMENTARIOS EN LAS DIETAS, LA NUTRICIÓN Y LA SALUD EN PERÚ

Autor : Lic. Lily D. Núñez de la Torre Caller

(Enero 2016 Lima – Perú)

Una de las causas fundamentales para el cambio de las dietas es la escasa economía que no permite la adquisición de los productos de alto valor nutricional que se requieren para lograr una alimentación balanceada y adecuada que sirva además para proteger y prevenir los problemas de salud de la población.

Los vínculos entre las dietas, el consumo y hábito de los consumidores en los sistemas alimentarios están definidos por el acceso a los productos, primordialmente.

Con la implementación de las cadenas de supermercados en la mayoría de ciudades del país y la región, se han incrementado los costos porque toda la inversión realizada en infraestructura,

equipamiento, mantenimiento, publicidad, marketing, así como el uso de las líneas de crédito con ofertas de descuentos y facilidades para los tarjetahabientes han elevado excesivamente los costos de los productos.

La inversión en altos costos de publicidad y marketing que hacen las empresas productoras de alimentos para el auspicio de programas televisivos de alta audiencia en horarios estelares - y que debido a su contenido superfluo son considerados " basura " – son asumidos por el consumidor final quien adquiere el producto para su consumo.

Adicionalmente como parte de las campañas publicitarias, conocidas marcas de productos alimenticios incluyen en sus envases figuras de personajes de películas " coleccionables" que supuestamente van a atraer al consumidor,(generalmente niños) cuando lo real es que una vez utilizado el producto el envase será descartado inmediatamente.

La pérdida de la capacidad adquisitiva de la población debida al retraimiento del crecimiento económico se hace sentir más aún en las poblaciones de escasos recursos y también en la clase media trabajadora que se encuentra altamente endeudada en el sistema financiero.

La afectación en la salud y nutrición de la población es directa por cuanto las dietas están orientadas solamente a la cantidad para paliar el hambre y no a la calidad de los productos, cuando el ama de casa tiene que verse en la necesidad de elegir lo más económico que ofrece el mercado para sustentar a su familia, entonces recurrirá a los productos de menor costo y mayor rendimiento que generalmente son los cereales por ejm.: arroz, el cual ha desplazado a otros productos como: tubérculos y menestras. La ingesta se está limitando a llenar el estómago más no a poder elegir productos de alto valor nutritivo.

El boom de la gastronomía y el turismo afectan también a toda la cadena alimentaria porque los productos que se utilizan para satisfacer los paladares exigentes elevan el costo de los insumos, por ejm. El pescado utilizado para el ceviche, plato típico del Perú, tiene un costo promedio de S/. 27 y difícilmente llega a la mesa de la mayoría de la población, convirtiéndose en un plato de lujo.

EXPORTACIÓN - IMPORTACIÓN DE ALIMENTOS

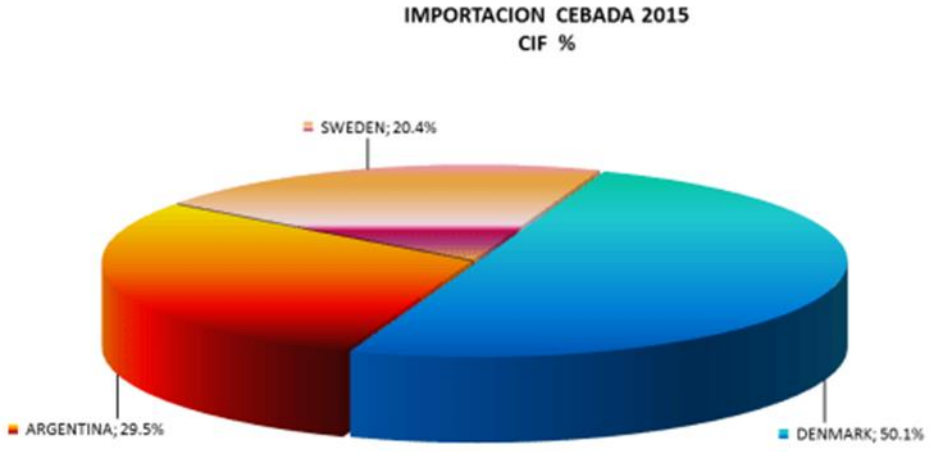
Existe igualmente un grave problema que es consecuencia de la exportación de productos agrícolas que han sido publicitados inclusive por el propio gobierno de turno como es el de la Quinua, grano andino de gran contenido nutricional y que es la base de la alimentación de las poblaciones nativas asentadas en los pisos ecológicos altos. Por la promoción que se ha dado a éste alimento, se ha logrado captar un importante mercado nacional y sobre todo internacional, en ambos casos el uso que se le viene dando llega a extremos al pasar a utilizarse la quinua o quinoa como ingrediente en la elaboración de cerveza y cosméticos (shampoo – NATURA - Brasil) con lo que la demanda ha crecido en relación a la producción que es escasa porque apenas llega a los 1,500 kilos por hectárea y el precio para el público nacional se ha elevado considerablemente llegando a costar 1,000%. En proyecto piloto se estima elevar a 4,000 kgs/há.

Algo similar está ocurriendo con otros productos como: aceitunas, palta, uva, mango, espárragos entre otros.

La población se ve obligada a consumir el sobrante que no se ha podido exportar porque no pasó los controles de calidad requeridos, pero al precio de mercado internacional. Baja calidad y alto costo.

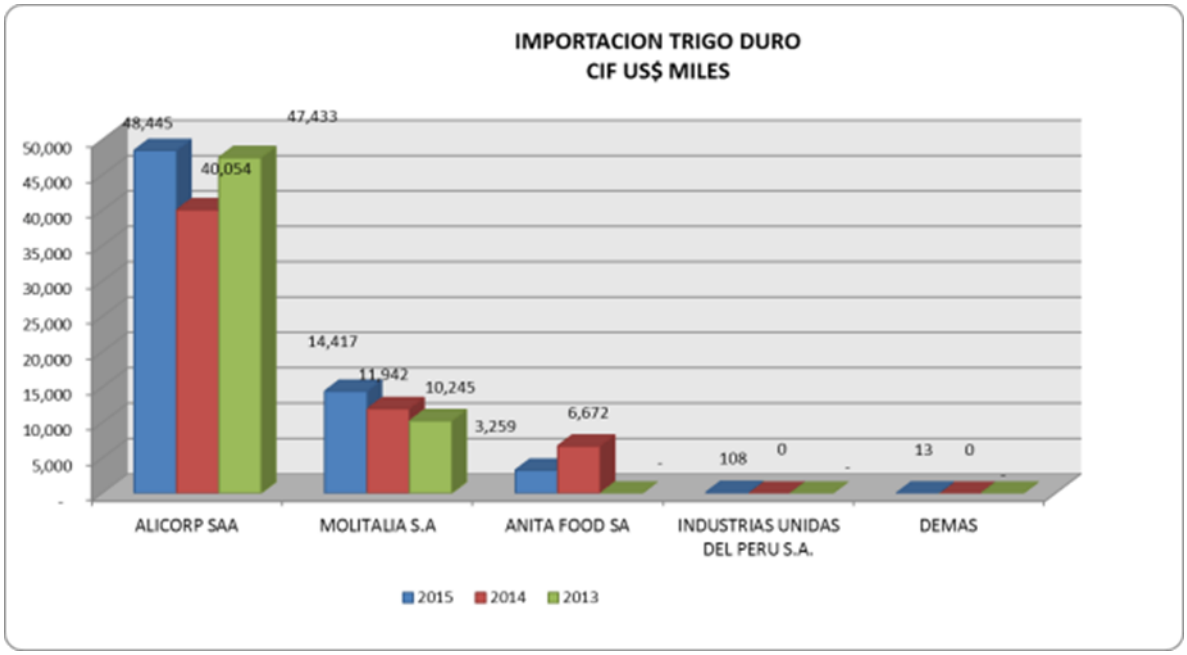
IMPORTACIÓN DE CEBADA Y TRIGO EN PERÚ

Perú importa cebada y el 100% lo hace la empresa BACKUS SAA que es la principal productora de cerveza, con lo cual la cebada importada no aporta a la calidad y variedad de la dieta en la población, encareciendo los productos de panadería y otros que solamente recurren a la producción nacional que es escasa para abastecer la demanda considerando que el consumo de pan es un uso habitual.



IMPORTACION CEBADA			12			12
MES	2015			2014		
	CIF	KILOS	PREC. PROM.	CIF	KILOS	PREC. PROM.
ENERO	4,218,057	14,653,000	0.29	3,263,048	9,884,640	0.33
FEBRERO				849,872	2,529,090	0.34
MARZO	1,737,284	6,033,980	0.29	2,552,549	7,508,630	0.34
ABRIL	2,242,679	8,014,350	0.28	1,927,107	6,002,430	0.32
MAYO	2,242,679	8,000,000	0.28	2,569,474	8,000,000	0.32
JUNIO	2,240,626	7,991,370	0.28	3,944,261	12,280,360	0.32
JULIO	2,657,783	8,000,430	0.33	2,247,241	7,000,000	0.32
AGOSTO	2,658,124	8,000,000	0.33	1,605,172	5,000,000	0.32
SEPTIEMBRE	5,889,548	17,726,630	0.33	4,230,112	12,659,210	0.33
OCTUBRE				3,409,802	11,041,779	0.31
NOVIEMBRE	2,657,785	8,000,000	0.33	4,153,751	13,118,490	0.32
DICIEMBRE	2,630,705	7,918,490	0.33	3,532,917	11,429,660	0.31
TOTALES	29,175,272	94,338,250	0.31	34,285,307	106,454,289	0.32
PROMEDIO MES	2,431,273	7,861,521		2,857,109	8,871,191	
% CREC. PROM	-15%	-11%	-4%	-4%	8%	-11%

Fte: Agrodataperu.com/2015/09



IMPORTACION DE TRIGO DURO			12			
MES	2015			2014		
	CIF	KILOS	PREC. PROM.	CIF	KILOS	PREC. PROM.
ENERO	1,240,086	3,392,107	0.366	1,278,567	3,450,000	0.371
FEBRERO	6,002,085	13,075,480	0.459	1,225,486	3,350,000	0.366
MARZO	18,072,662	42,213,456	0.428	7,287,109	19,151,540	0.380
ABRIL	770,053	1,742,100	0.442	8,167,525	22,790,940	0.358
MAYO	6,018,039	12,513,905	0.481	5,153,517	14,510,130	0.355
JUNIO	6,365,123	16,638,250	0.383	2,000,197	5,738,110	0.349
JULIO	1,563,160	2,884,350	0.542	6,573,617	17,485,430	0.376
AGOSTO	909,101	2,353,684	0.386	7,022,420	18,214,440	0.386
SEPTIEMBRE	5,700,747	15,858,195	0.359	9,128,390	23,966,201	0.381
OCTUBRE				1,309,695	3,641,150	0.360
NOVIEMBRE	10,208,817	28,832,275	0.354	7,858,639	21,103,042	0.372
DICIEMBRE	9,392,091	25,887,405	0.363	1,662,901	4,200,000	0.396
TOTALES	66,241,964	165,391,207	0.401	58,668,063	157,600,983	0.372
PROMEDIO MES	5,520,164	13,782,601		4,889,005	13,133,415	
% CREC. PROMEDIO	13%	5%	8%	0%	3%	-3%

Fte: Agrodataperu.com/2015/09/

De esta manera debido a las políticas de estado, no existe una diferenciación entre el abastecimiento prioritario que debe darse al mercado interno para favorecer la nutrición de la población, siendo más importante la balanza de pagos, dejando de lado la inversión en el ser humano.

En los países donde se ha enquistado el narcotráfico y hay cultivos de la hoja de coca, se agudiza el problema porque el campesino recibe mayor precio ocupando las parcelas en su cultivo y el comercio de la droga propicia la corrupción, delincuencia y violencia. Esta actividad ilícita ocasiona un grave daño a la economía de la clase trabajadora porque tiene gran poder adquisitivo y de manera directa

interviene en la elevación de los productos de alto valor nutricional, los que ya no se encuentran al alcance de la escasa economía de los asalariados y peor aún de los independientes informales.

Es así que en la actualidad existen factores determinantes para los cambios en el consumo y que son:

- El manejo de distribución comercial de los productos por los grandes consorcios a través de cadenas de supermercados.
- Los sobrecostos de publicidad y marketing.
- El desarrollo de la gastronomía enfocada hacia el turismo.
- La exportación sin regulación de abastecimiento interno.
- El narcotráfico.
- La corrupción.

De ésta manera se afecta la dinámica de los sistemas alimentarios a los patrones de consumo, debilitando la ingesta de nutrientes porque la población se tiene que ver obligada a cambiar sus hábitos por falta de economía, se termina pagando más por marca, envase y publicidad que por contenido nutricional.

- Para resolver y crear vías hacia una alimentación sana, se debe trabajar en forma articulada entre el Estado, las organizaciones, la sociedad civil y la comunidad.
- Que se retiren los costos de marketing y publicidad de los alimentos de la canasta básica.
- El valor agregado a los productos sea dado en la misma región para evitar costos adicionales de transformación y fletes.

En cuanto al papel de las políticas públicas en la promoción de una alimentación sana, nutritiva y culturalmente adecuada para todos, éstas deben priorizar el sentido humano por encima del comercial, porque las reglas que actualmente rigen en la mayoría de países están orientadas más hacia los resultados y sus mediciones desde el punto de vista macroeconómico, con el objetivo de mostrar cifras en azul por el crecimiento y desarrollo, dejando en segundo plano el desarrollo social, al cual destinan partidas de asistencialismo que van a degradar la productividad innata que tiene el ser humano en lugar de mejorar la capacitación y tecnificación para salir del anillo de pobreza extrema en la que se encuentra una gran parte de la población, especialmente rural y nativa, generación tras generación desde hace siglos.

Los programas sociales están cubriendo cual barniz el problema subyacente que es el desarrollo de las capacidades del ser humano y su acceso a los derechos ciudadanos. Éstos tienen un alcance limitado, están expuestos a los cambios de gobierno, son manipulados para conseguir electores y hay grandes filtraciones. Se ha avanzado en lo urgente; pero no en lo importante que es proveer de capacidad productiva a las poblaciones, el asistencialismo es altamente perjudicial, los resultados son mínimos y si se decrece en DCI por otra parte se eleva la tasa de anemia y TBC, porque las familias no generan su propia economía autosuficiente, se están acostumbrando al facilismo de la dádiva del estado.

Para poder aprovechar la diversidad de los actuales sistemas alimentarios se pueden adoptar soluciones viables y prácticas que reviertan las consecuencias negativas de los factores enfocados. Algunas de éstas acciones deben ser:

- Formación de cooperativas productoras agrarias que fortalezcan la producción y comercialización de los productores rurales.
- Implementación de Comedores Comunales paralelos a programas de capacitación que permitan generar ingresos a las poblaciones en extrema pobreza, especialmente en el ámbito rural y urbano marginal.
- Comedores populares – Reforzar las experiencias adquiridas.
- Capacitación y empoderamiento de género.
- Inversión en tecnificación agrícola pecuaria.

Las medidas que se deben adoptar incluyen la activa participación articulada del Estado, los organismos gubernamentales, la sociedad civil, el sector privado y la población y se debe tomar en cuenta que la inversión más importante y rentable es la de capacitar para lograr elevar el nivel de vida de manera autosuficiente en actividades de desarrollo económico productivo de acuerdo a cada región, cubriendo las necesidades básicas y potenciando las aptitudes individuales y colectivas naturales en el ser humano y que están siendo atrofiadas por el asistencialismo.

El mejor recurso de una nación es su población saludable y bien capacitada.

BIBLIOGRAFÍA

http://www.inia.gob.pe/sala-de-prensa/notas-de-prensa/618-inia-cultivo-de-quinua-en-costa-rendira-mas-de-4-mil-kilos-por-hectarea

http://www.agrodataperu.com/2016/01/cebada-peru-importacion-diciembre-2015.html

http://diario16.pe/noticia/59918-america-tv-latina-tienen-tarifas-mas-alta-publicidad

http://www.razon.com.mx/spip.php?page=columnista&id_article=294758

http://larepublica.pe/10-09-2014/edicion-especial-cusquena-quinua-en-mistura-2014

http://www.naturatienda.com/cabello/shampoo-con-serum-concentrado-de-quinoa.html

72. Richie Alford, Send a Cow, United Kingdom

Send a Cow welcomes the opportunity to comment on the issues note for the forthcoming report by the HLPE on Nutrition and food systems. We support much of it, but would like to draw attention to certain aspects.

Send a Cow works in seven countries in Africa, helping smallholder farmers build the hope and the means to secure their own futures from the land. While our focus is therefore on poor people in rural Africa, we believe that an approach that benefits them can have benefits globally, including in the over-nourished developed world.

1. It is vital that the report takes a holistic view of nutrition, recognising that food and nutrition cannot be seen in isolation from political, social, economic and environmental factors.

2. Send a Cow advocates in its programmes a farm systems approach, whereby farmers are encouraged to map out and then optimise all their resources and linkages, whether their own or

shared: land, livestock, people, communities, skills, water, crops, access to markets etc. This enables people to build viable farms with minimal external input so they can feed their families a balanced diet, without recourse to food aid.

3. This agro-ecological approach is beneficial for people and the environment. Even farmers with tiny plots of land can learn how to increase output without encroaching on marginal or forested lands. Farmers can learn how to produce enough food for growing populations while adapting to, or even mitigating, the effects of climate change.

4. Good food stems from good agriculture. While high-tech supplements can be useful in emergency situations, they must not dominate the nutrition agenda. They encourage poor people to become dependent on external agencies, rather than build their own resilience.

5. In particular, we do not wish to see more investment in GMO products, which remove farmers' ability to save seeds. Likewise, we believe that fossil fuel-based fertilisers are an environmentally damaging and costly substitute for animal and green manures.

6. It is vital that the rights of smallholder farmers, particularly in Africa, take centre stage. They produce most of the world's food, yet are among the world's hungriest people. They require investment in skills, extension services, access to credit and savings, access to markets, and land rights.

7. This is particularly true for women, who make up roughly half of Africa's smallholder farmers yet receive a small percentage of the assistance. Nutrition awareness training is also vital, as women tend to be in charge of providing meals for the family.

8. We wish to see investment in local markets, and in smallholder cooperatives that link farmers to better trade deals and contracts. Shifting the focus to local production, away from an export-led model, would also benefit the countries of the developed world. Cheap imports into the developed world not only risk undermining local agriculture, but also encourage over-consumption that is damaging to these populations' health.

9. The evidence is strong that this rights-based, holistic approach is effective for the food security and nutrition of Africa's smallholder farmers. After a recent three-year Send a Cow programme in Uganda, 97% of respondents were eating a balanced diet of more than six different foodstuffs per day, according to the Household Dietary Diversity Score; the average household had eight different foodstuffs per day. Some 87% considered themselves food secure or only mildly food insecure, as measured on the Household Food Insecurity Access Scale.

73. Mehta Subhash, DST, India

FEEDING THE PEOPLE:

AGROECOLOGY FOR NOURISHING THE WORLD AND TRANSFORMING THE AGRI-FOOD SYSTEM

IFOAM EU Group
http://www.ifoam-eu.org/sites/default/files/ifoameu_policy_ffe_feedingthepeople.pdf

TRANSFORM?... OR CONFORM AND ADJUST?
Bernadette Oehen and Angelika Hilbeck

How can inefficient, poorly managed smallholder systems be transformed into productive agroecological systems?

And how can environmentally destructive, energy and chemical-intensive industrial systems be converted into productive agroecological systems?

What role does international trade play in today's agro-food systems, and are short supply chains relevant?

This brochure provides a platform to a number of experts working in various fields relevant to these issues. It gives them space in which to share their visions and voice their concerns about how we are feeding the people of the world.

The focus is on small-scale farmers who, all over the world, are prone to food insecurity, but who nevertheless feed more than 80% of the world's population. Many of these farmers are located in what we often call the developing world, but we should make no mistake: change is needed in developed and developing countries alike. Food insecurity in today's world results from a globally dysfunctional agro-food system that is failing to meet the needs of many people in both developing and developed countries.

There is an urgent need for a transition from the existing agro-food systems to sustainable agroecological systems. This brochure explains many reasons why change is needed, based on strong science to underpin the arguments. At the same time, the authors highlight the main needs for further research and describe impediments to the progress of agroecology.

The articles examine aspects of agricultural policy, the role of livestock and nutrient cycles, climate change, international trade and certification schemes, the need for innovation and the need to bring consumers closer to producers. In this way, we hope to contribute to a constructive and inspiring debate on this important issue that affects everybody around the globe!

A lot of know-how has been generated on the production side, and many methods for alternative, sustainable forms of agricultural production have been documented. This rich body of expertise continues to grow. The flourishing organic sector, the growing interest in agroforestry and permaculture, the spread of integrated pest management approaches are just a few examples. These developments so far have yet to be matched by a similar degree of support in other fields necessary for their broader adoption. Therefore, to scale up the use of these agroecological production systems, there is a need to develop and improve the means of knowledge transfer that includes the participation of farmers. And it is important to establish regional supply chains, including food storage, processing and trade links.

At both national and international levels, there is an absence of broad-based political support, regulatory frameworks and appropriate economic incentives – or they are just in their infancy. Just as the industrial, mechanized systems of monoculture that transformed post-war global agriculture could only be installed with massive public investments and the concerted efforts of all the relevant segments of society, so too will the next transformation of agriculturerequire a similar concerted effort for its success – an effort that involves science, research and technology combined with adequate policies and economic incentives.

The Way Forward for Agro ecology and the Transformation of the Global Industrial Agro-Food System

• Funds must be provided and opportunities created for scaling up the best agroecological systems and integrating them into a coherent supply and value chain.

• National and international trade agreements must support the development of regional food systems.

• Training and extension work for agroecological production and fair trade must be integrated into academic and vocational education programmes.

• Significant investment is now needed to research and develop new economic paradigms that penalize business models contributing to environmental degradation, and reward those that protect and promote biodiversity, and eliminate environmental pollution and other harmful practices. While research into agroecology in its broadest sense has delivered results, that research has been largely decoupled from the study of economics.

• Final product prices must reflect the true costs of production by internalizing all the externalities.

• A detailed review is needed of the existing WTO rules, including its trade and agricultural policy measures, in order to strengthen food security, food sovereignty and sustainable rural development. Other relevant agreements should also be examined, such as those on anti-dumping, public procurement and the agreement on services.

• For this reason, we are calling for a billion-euro flagship research programme on agroecology and the transformation of the current agro-food system. The disadvantaged position – even exclusion – of agroecological research from major funding mechanisms must be overcome. Agroecology is an innovative form of food production that offers huge potential, not only to provide better food but also to remedy the environmental destruction that now threatens human societies.

• It is imperative that we break free of our collective dependency on the industrial agro-food systems that is under-serving the people and destroying the environment – it is also achievable, because the necessary agroecological systems do exist and are ready for deployment as soon as we have a conducive institutional and political environment. Missing this opportunity would be unforgiveable to future generations.

Get off the Chemical Treadmill's Poisoned Agriculture and Food:

http://www.globalresearch.ca/poisoned-food-poisoned-agriculture-getting-off-the-chemical-treadmill/5485076

A peer-reviewed study published last year in the British Journal of Nutrition, a leading international journal of nutritional science, showed that organic crops and crop-based foods are between 18 to 69 percent higher in a number of key antioxidants such as polyphenolics than conventionally-grown crops. Numerous studies have linked antioxidants to a reduced risk of chronic diseases, including cardiovascular and neurodegenerative diseases and certain cancers. The research team concluded that a switch to eating organic fruit, vegetable and cereals – and food made from them – would provide additional antioxidants equivalent to eating between one and two extra portions of fruit and vegetables a day.

Moreover, significantly lower levels of a range of toxic heavy metals were found in organic crops. For instance, cadmium is one of only three metal contaminants, along with lead and mercury, for which the European Commission has set maximum permitted contamination levels in food. It was found to

be almost 50 percent lower in organic crops. Nitrogen concentrations were also found to be significantly lower in organic crops. Concentrations of total nitrogen were 10 percent, nitrate 30 percent and nitrite 87 percent lower in organic compared to conventional crops. The study also found that pesticide residues were four times more likely to be found in conventional crops than organic ones.

The research was the biggest of its kind ever undertaken. The international team of experts led by Newcastle University in the UK analysed 343 studies into the compositional differences between organic and conventional crops.

The findings contradict those of a 2009 UK Food Standards Agency (FSA) commissioned study which found there were no substantial differences or significant nutritional benefits from organic food. The FSA commissioned study based its conclusions on only 46 publications covering crops, meat and dairy, while the Newcastle University-led meta-analysis is based on data from 343 peer-reviewed publications on composition difference between organic and conventional crops.

There has been for a long time serious concerns about the health impacts of eating food that has been contaminated with petro-chemical pesticides and fertilisers. Over the past 60 years, agriculture has changed more than it did during the previous 12,000. And much of that change has come about due to the so-called 'green revolution', which has entailed soaking crops with petrochemicals. Coinciding with these changes has been the onset and proliferation of numerous diseases and allergies.

The global agritech/agribusiness sector is in effect poisoning our food and the environment with its pesticides, herbicides, GMOs and various other chemical inputs. Journalist Arthur Nelson has written that as many as 31 pesticides could have been banned in the EU because of potential health risks, if a blocked EU paper on hormone-mimicking chemicals had been acted upon.

Christina Sarich recently reported that there are currently 34,000 pesticides registered for use in the US. She states that drinking water it is often contaminated by pesticides and more babies are being born with preventable birth defects due to pesticide exposure. Chemicals are so prevalently used that they show up in breast milk of mothers.

Illnesses are on the rise too, including asthma, autism and learning disabilities, birth defects and reproductive dysfunction, diabetes, Parkinson's and Alzheimer's diseases and several types of cancer. Sarich says that their connection to pesticide exposure becomes more evident with every new study conducted.

Important pollinating insects have been decimated by chemical herbicides and pesticides, which are also stripping the soil of nutrients. As a result, for example, there has been a 41.1 to 100 percent decrease in vitamin A in 6 foods: apple, banana, broccoli, onion, potato and tomato. Both onion and potato saw a 100 percent loss of vitamin A between 1951 and 1999.

In Punjab, India, pesticides have turned the state into a 'cancer epicentre', and Indian soils are being depleted as a result of the application of 'green revolution' ideology and chemical inputs. India is losing 5,334 million tonnes of soil every year due to soil erosion because of the indiscreet and excessive use of fertilisers, insecticides and pesticides. The Indian Council of Agricultural Research reports that soil is become deficient in nutrients and fertility.

We can carry on down the route of chemical-intensive, poisonous agriculture, with our health and the environment continuing to be sacrificed on the altar of corporate profit. Or we can shift to organic

farming and investment in and reaffirmation of indigenous models of agriculture as advocated by the International Assessment of Agricultural Knowledge Science and Technology (IAASTD) report.

In this respect, botanist Stuart Newton's states:

"The answers to Indian agricultural productivity is not that of embracing the international, monopolistic, corporate-conglomerate promotion of chemically-dependent GM crops… India has to restore and nurture her depleted, abused soils and not harm them any further, with dubious chemical overload, which are endangering human and animal health." (p24).

Newton provides insight into the importance of soils and their mineral compositions and links their depletion to the 'green revolution'. In turn, these depleted soils cannot help but lead to mass malnourishment. This is quite revealing given that proponents of the 'green revolution' claim it helped reduced malnutrition. Newton favours a system of agroecology, a sound understanding of soil and the eradication of poisonous chemical inputs.

Over the past few years, there have been numerous high level reports from the UN and development agencies putting forward similar arguments and proposals in favour of small farmers and agroecology, but this has not been translated into real action on the ground where peasant farmers increasingly face marginalisation and oppression.

According to Vandana Shiva, for instance, the plundering of Indian agriculture by foreign corporations is resulting in a forced removal of farmers from the land and the destruction of traditional communities on a scale of which has not been witnessed anywhere before throughout history. On a global level, not least because peasant/smallholder farming is more productive than industrial farming and because it feeds most of the world, this is undermining the world's ability for feeding itself. It is also leaving to denutrification: not only in terms of specific items containing less nutrients than before, as described above, but because people are being forced to rely on a narrower range of foodstuffs and crops as monocropping replaces a biodiverse system of agriculture.

The increasingly globalised industrial food system is failing to feed the world but is also responsible for some of the planet's most pressing political, social and environmental crises - not least hunger and poverty. This system – not forgetting the capitalism that underpins it - and the corporations and institutions (IMF, World Bank, WTO) that fuel it must be confronted, as must the wholly inappropriate and unsustainable urban-centric model of 'development' being forced through at the behest of these corporations in places like India.

Organic farmer and activist Bhaskar Save describes how this urban-centric model has served to uproot indigenous agriculture in India with devastating effect:

"The actual reason for pushing the 'Green Revolution' was the much narrower goal of increasing marketable surplus of a few relatively less perishable cereals to fuel the urban-industrial expansion favoured by the government. The new, parasitical way of farming… benefited only the industrialists, traders and the powers-that-be. The farmers' costs rose massively and margins dipped. Combined with the eroding natural fertility of their land, they were left with little in their hands, if not mounting debts and dead soils… Self-reliant farming – with minimal or zero external inputs – was the way we actually farmed, very successfully, in the past. Barring periods of war and excessive colonial oppression, our farmers were largely self-sufficient, and even produced surpluses, though generally smaller quantities of many more items. These, particularly perishables, were tougher to supply urban markets. And so the nation's farmers were steered to grow chemically cultivated monocultures of a few cash-crops like wheat, rice, or sugar, rather than their traditional polycultures that needed no purchased inputs."

Even if proponents of the 'green revolution' choose to live in a fool's paradise by ignoring the ecologically and environmentally unsustainable nature of the system they promote and merely mouth platitudes about organic being less productive, they might like to look at the results Bhaskar Save achieved on his farm. They might also like to consider this analysis which questions the apparent successes claimed by advocates of the 'green revolution'. And they should certainly consider this report based on a 30-year study which concluded that organic yields match conventional yields and outperform conventional in years of drought. That report also showed that organic agriculture builds rather than deplete soil organic matter, making it a more sustainable system.

But why let science get in the way of propaganda? These proponents have already paved the way for extending the corporate control of agriculture and the 'green revolution' with their GMOs and further chemical inputs – all underpinned of course by endless deceptions and neoliberal ideology wrapped up as fake concern for the poor.

74. Byomkesh Talukder, Wilfrid Laurier University, Canada

Suggestions toward developing a conceptual framework for measuring food security, health and nutritional status of the communities of different agricultural systems:

Food security, nutrition and health of different communities of different agricultural systems vary. To some extend it depends on agricultural practices and the diversity of the agricultural systems. Food security, nutrition and health have the multidimensionality aspects of social, economic and environmental issues. Therefore it can be assessed by multi-criteria decision analysis (MCDA) and indicators from multidisciplinary subjects. Understanding the status of the food security, nutrition and health, and policy measures can be developed by indicator based MCDA analysis of the communities of different agricultural systems. A systems of systems approach can be used for framing detail data collection. The data related to protein and calorie productivity, energy use efficiency, human and physical compatibility, economic and social equity, food security, nutrition and health can be collected by using both qualitative and quantitative data-collection methods consist of interviews using a questionnaire, measurement of food/nutrient intake, anthropometry, and observations of clinical signs of malnutrition and so on.

75. Manuel Castrillo, Proyecto Camino Verde, Costa Rica

La complejidad evidente nos lleva a varios frentes, sin embargo, las decisiones desde las políticas públicas y privadas, no están armonizadas todo lo que podrían con las necesidades de alimentación y nutrición de las personas, por ende su salud. Las estructuras económicas actuales van en función de las ganancias económicas y esto muchas veces deja de lado **la salud** como fin primario, el " *negocio ante todo* " *!.* Inclusive los sistemas médicos están " pensados ", para la atención post enfermedad, tienen ese énfasis - hablando de nutrición -, y a la parte preventiva, no se le da la prevalencia que requiere las personas.

El enfoque de los sistemas involucrados, no parte realmente de estas necesidades como eje, además la capacidad de dar fundamentos y requisitos en normativas reales y aplicables a los actores que rigen la cadena alimenticia a nivel mundial, regional o local, no es relista con los intereses de los sectores, entonces, cómo logramos un entendimiento y establecemos un marco equilibrado ?, la cuestión tiene cantidad de aristas.

Desde la disposición de los inversionistas, el agro, los sistemas de distribución y comercio, la atención en salud y por supuesto las preferencias del consumidor, estamos ante ***" actitudes "*** disímiles, donde no se puede conciliar a todos los intereses de manera homogénea. La visión " holística " para establecer **patrones o esquemas** desde la fuente hasta el usuario final, parte de un entendimiento razonado y que valore el beneficio general de los factores y actores involucrados.

Al carecer de este marco, se deben seguir orientando las acciones prioritarias a los grupos vulnerables y **víncular** los mecanismos de la " *cadena de valor ",* hacia un objetivo pausible de ***" interés global ",*** en todas las actividades relacionadas con la alimentación, nutrición y salud. Dónde encontramos ese **punto de balance** ?

Diversas organizaciones multinacionales, ONU (FAO, PNUD, Etc,) OMS, OMC, gobiernos, deben establecer un norte claro y de acuerdo a las características propias y diferenciadas en un " bien común " - suena utópico, claro - pero esa pretensión nos marcaría una hoja de ruta, hacia objetivos enlazados con otras cuestiones globales que se presentan actualmente. Hay cantidad de prácticas que se realizan y diversos movimientos que van en el sentido correcto, pero no son sufientes. En todo caso, Sigue siendo un asunto de complacer la mayor cantidad de intereses por el bien común.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/BUDGET%20WORK%20TO%20ADVANCE%20%20THE%20RIGTH%20TO%20FOOD.pdf

76. Nestor Mahazoasy, Madagascar

Thank you for taking into accounts the following ideas I kindly suggest despite their limitation due to the broadness of the subject:

- How and why do diets change?

I have observed that diet is relied on a personal choice which is influenced by **Environment** (available and marketed local products, habits, fashion, lifestyle, money, weather, and mood) and the **feeling of a physical status** (resulting from pregnancy and physical activities like hungry, thirsty). It changes through life cycle, is different for man and women, societal status …

- What are the links between diets, consumption and consumer habits and food systems?

Earnings, economic constraints, marketing and more important are information on products (that is said may fulfill a diet). Network of counseling is spontaneous (between maternal, parental, young people …) in order to look for the “better” cost to benefit, or means (capability) to starvation – in Madagascar, staple food is more than common.

- How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

A good food system must offer diversified and low cost products, adapted to habits and beliefs.

- What are the determinants of the changes in consumption?

Health constraint (benefits to health – healthy diet), food costs, food taste, means of cooking (cooking material, whether adapted to coal …), and ease of cooking (boiling water …), product availability, confidence (healthiness, sanitation), knowledge, education, information.

- How do the dynamics of food systems drive consumption patterns?

Consumption patterns may be driven by a food system that has the means of offering universal coverage (in time – life cycle and group of ages – and in geographic space).

- How to shape and to address pathways to healthy nutrition?

In order to shape and address pathways to healthy nutrition, we must educate (prioritizing health and physical performance or wellness first, then taste, qualities and quantities). Consumption habits may come with economic means.

- What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

Public policy should promote products with minimum standard level of nutrition requirements by country. School and food professional must have standard costs for such nutritious products. Each country must have a universal value chain for such nutritious products. People must have knowledge of good and healthy eating habits. Social protection policy and plan must provide poor and vulnerable people (particularly women and children among them, where either they are), with minimum daily nutritious food requirement.

- How to build on the diversity of the existing food systems?

The diversity of the existing food systems may help promote growing local, daily and fresh products consumption; their use in promoting local restaurant specialties, and market. The better is a local or regional product (from taste to price), the better its adoption by consumers (by group of age, at national level). Market information system (MIS) must be nutrition oriented.

- What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

With respect to food preference in a country, the food systems must aim first to promote daily consumption by all groups of ages of adequate nutritional food either grown or prepared locally. It should ensure minimum loss (with the right packaging and/or quantity) and full confidence (sanitation and quality labels), at all daily reselling, packaging and consumer points.

In order to provide full coverage of population and respond to market needs, the food system must provide adequate knowledge and information to all stakeholders (price, availability, quality, nutrition facts …).

- What action should different stakeholders, including governments, civil society and the private sector, take?

Recognize the need of holistic approach, including gender approach.

Most important is the private sector that must fulfill population need.

The government must provide incentive to private sectors for all questions regarding food systems and nutrition.

The civil society must ensure that the access to nutritious food is universal (by contributing to better coverage and counseling).

77. CONTRIBUTION REMOVED

CONTRIBUTION REMOVED

78. Raul Goswami, India

Thank you for providing the opportunity to register my comments and observations on the HLPE Steering Committee Issues Note on Nutrition and Food Systems.

In the draft note's opening comments there are a few ideas presented that I would like to quote as they shape the treatment of the ten points to consider. These are:

"There is a diversity of food systems and growing evidence of the health and nutrition implications of different food systems."

"The overarching issue in this report shall be to assess the influence of various types of food systems on diets, nutrition and health."

"It shall consider food chains from farm to fork and all the sustainability challenges of food systems (in the economic, social and environmental dimensions) and how they relate to nutrition."

"This calls for a report grounded on a multidisciplinary approach."

"Malnutrition is a global issue. The nutrition focus shall include malnutrition in all its forms, including under nutrition, over nutrition and micro nutrient deficiencies."

"The report shall examine the multidimensionality of food systems and nutrition and the root causes of malnutrition."

It would help to illustrate what is meant by a 'food system' and where the 'diversity' in food systems comes from. There are - as many previous CFS-HLPE consultations have shown - many ways in which to consider what agro-ecological systems and cultivation ideologies are. For this Issues Note, is 'food system' synonymous with an agro-ecological system, or with the retailing of primary crop produce, or with the technology, finance and marketing apparatus that deals with the transformed and retailed end product? I prefer to consider not 'food system' but primary crop that emerges from an agro-ecological approach, which is then stored as and used as food. This is an important distinction to make, because it maintains the connection between 'food' and agro-ecological cultivation, and it is on the basis of that connection we can consider what we mean by nutrition, but also by the provision of calories and the culturally-sound dietary selection - all these are to be taken together and it will not help engender a deeper understanding of the influencing factors if one (nutrition) is removed and treated separately.

Likewise, what is it that influences crop choices, the kind of agriculture practiced, and the notions of sustainability about any food provisioning system that rests upon these crop and cultivation choices? I'd like to point out that the FAO-OECD Agricultural Outlook projections for 2023 expect that 12% of maize and other coarse grains will go to biofuel production, 14% of global vegetable oils will be used to produce biodiesel, and 28% of sugar will go towards producing transportation fuels. This represents some of the contradictions that immediately confront any serious and committed discussion of what is meant by 'food system', dietary adequacy, dietary choice, degree to which primary crop is retained as food (that is, before entering the processing and then retail chains). There are aspects in such consideration that must dwell on how such use of maize, vegetable oil and sugar (to take examples pertaining to fuels) diverts land and water from their optimal use in producing healthier food. It also helps describe how substitution of one kind of energy (fossil fuel) with another kind (cultivated

biomass) represents part of the current coalition of interests around 'green economy' and 'low carbon development' which have a very significant impact on food systems and nutrition.

The attempts to regulate commodities markets have been derailed by strong financial industry lobbying (because of the financialisation of food and other commodities, and the manner in which these are tied to the capital and speculative finance markets). As a result, financial speculators (who take form as a bewildering variety of funds) treat food commodities as an 'asset class'. In this way, the pernicious link between food, fuel, and financial markets adds volatility to real food markets even if overall food price indices remain relatively low. The Issue Note therefore must accurately characterise current conditions concerning: (a) what is considered agriculture and food policy, (b) how the food industry in fact functions, (c) how farmers' crop choices are influenced, (d) the ways in which consumers' food purchase choices are shaped, (e) the prices (to industry, government, household and producer) at which such choices are made out to be economically 'viable', and (f) the environmental, ecological, cultural and social costs that are incurred with these choices.

This is necessary as today a small number of increasingly powerful corporations dominate global markets and also what is considered the public policy space concerning agriculture and food. Despite having brought rapid growth in production of a few staple commodities, hunger and malnutrition persist, as do environmentally unsustainable production practices. Overall, at the inter-governmental level as well as at the national level, policy-makers have failed to confront the new realities of the dangerous interdependence of food, fuel, and financial markets in the face of climate change. The token changes mentioned so far have been inadequate to produce the kinds of structural reforms in global and national policies that are required to take us on a different path toward a different result. This different result and practice includes ensuring that farmers have access to decent land, public research and extension, credit, marketing support, measures to stabilise prices at remunerative levels, and import protection where necessary. These are not new ideas, and have been put forth since the early 20th century in most countries which began to follow (or were advised to by multi-lateral development banks) industrial agricultural methods.

These are also countries in which food markets (physical, rural, urban, wholesale) experience both shortages and price volatility because they have been persuaded (or coerced) into abandoning the practice of maintaining public food reserves that help deal with emergencies and help dampen commodities markets-induced price volatility. During the two decades of the International Monetary Fund- (IMF) directed structural adjustment programmes until 2008-09, when the food price rise struck all over the world, reserves like these had been widely condemned by the cabal of macro-economic planners who advise governments as inefficient, market-distorting government interventions. Such calumny continues, but many governments have taken steps to establish food reserves as an important measure with which to stave off price volatility in local markets caused by the transferring of international food commodity prices and the volatility that accompanies them every so often as the financialisation mania takes a new turn for the dangerous.

To make clear the fundamental connection between what the Issue Note considers as food systems and their sustainability, and the perversities of macro-economics that prevail today, consider the public stock-holding programme of India. It is linked to the right to food through a programme that pays farmers a guaranteed (minimum support) price slightly higher than market prices for their crops and distribute it to the needy at subsidised rates (for cereals, pulses and sugar). When fully implemented, the programme can reach more than two-thirds of India's enormous population, a large number of whom experience dietary deficiencies and inadequacies. Yet the National Food Security

Programme of the government of India has been singled out as a sticking point for the World Trade Organization (WTO) which has the potential of stalling the WTO altogether, and which therefore must be 'reformed' as per the dictates of a grouping which includes the USA, EU and several of their allies. That these 'reforms' rest upon archaic norms agreed two decades ago and which unabashedly favour the USA, EU and OECD are considered beyond the scope of negotiation.

In 2011 the then U.N. Special Rapporteur on the Right to Food, Olivier De Schutter, identified the underlying problem when he accepted his second three-year mandate in 2011: "Too much attention has been paid to addressing the mismatch between supply and demand on the international markets - as if global hunger were the result of physical scarcity at the aggregate level - while comparatively too little attention has been paid both to the imbalances of power in the food systems and to the failure to support the ability of small-scale farmers to feed themselves, their families, and their communities." My advice to the HLPE is to not treat nutrition separately. Until recently, the loudest alarm raised concerning food has been that not enough of it is grown to remove global hunger, when in fact for years inter-governmental and state data have showed that collectively, countries grow enough to feed very much more than the current population (after providing for cattle, poultry and farm and draught animals). In the same manner, I find, the superficial but high-volume argumentation about nutrition is taking shape in order to divorce it from agro-ecological cultivation, culturally and community appropriate crop and dietary choices, from the retaining of primary crop as food (less to the processing and retailing industries, none to the fuel industry). It is taking shape in order to use the goal - that seemed to become available under the 'global hunger' alarm - of raising production through the expansion of industrial high-input monoculture farming assisted by bio-technologies and synthetic biologies.

Yours sincerely,

Rahul Goswami

79. Hamidreza Naderfard, Iran

Honorable Dr. Nathanael Pingault, coordinator of HLPE

My best regards to you

I hope you and all of your colleagues in steering committee of HLPE are healthy and happy Referring to your contribution in DAD-Net@fao.org under the title of :

HLPE Report on:

Nutrition and food systems + call for Experts , published in Dec 10 2015

Hereby, I present my view points about the ten (10) questions with the emphasis (Taking in to my consideration) on the three basic points include: A –Under-nutrition B-Over-nutrition

C-Micronutrient deficiencies.

My general view points:

Important Note: I write my view points with this mentality that the First link of all food systems, kind and change of diets ,Sufficient or deficient nutrition of human being is SUSTAINABLE FOOD PRODUCTION , which is output of crop production or animal breeding in farms in a safe and comprehensive stable conditions.

……..

I ,personally, deeply, believe that nutrition and all subjects which by a way are related to nutrition of human being can not be appraised and studied solely .on the contrary , it must be considered as a component of a combined phenomenon in our planet , very particularly , in the first decades of 21st century which food production as the final output of all agriculture and animal husbandry activities in the world depends on many social(Dynamic universities and r esearch centers) , economic ,climatic , cultural ,environmental ,training and extension services in rural areas (status of human resources) and political conditions .In this connection , the best and the clearest examples are:

Unfortunately , the ominous phenomenon of terrorism has shadowed a vast region of planet, the region where is very rich and suitable for ood production but we cannot deny the terrible effects of this ominous phenomenon , because surely , will affect all socio- economic activities ,mainly agriculture activities , accordingly , food production for all age categories of people specially , babies and children.

Continuous drought or decrease of useful rainfall in a vast area of planet which , surely, affect the food production , accordingly ,will directly affect the diet of world people which ,No-doubt, will cause nutritional deficiencies mainly under-nutrition and micro-nutrient deficiencies.Climate change , which ,In turn, affects the biologic efficiency of soil and water , productive and reproductive performance of animal and plant genetic resources , accordingly , food production and food system and finally will affect diets of people , particularly poor and weak people who are more vulnerable , specially , babies and children.

Imposed and Un-wanted wars in some region of planet. Unfortunately , continuous wars

(The most of them are Imposed) , which surely , originates from:

A-Ignorance (Nescience) of people, for example, tribal wars in some regions of planet, and fanatical wars which is very destructive.

B-Self –interest and mentality of invasion to other countries. No-doubt, every kind of war will affect directly the cultivation of lands, social and economic and spiritual conditions of farmers so that will cause vagrancy,hunger And adversity ,accordingly , will affect the food production.

And finally , all of these above- mentioned areas will be adversely effective on the food production ,compulsory change of diet ,disorders in food systems , will create nutritional ,mainly protein and micro nutrient deficiencies.

How and why do diets change?

On the whole , in a normal and quiet condition, people of each country are well adapted to their conventional diet , the diet which during centuries parents have presented to their next generation , therefore , those people love to their common diet and are well adapted to it. Considering that, kind of diets completely originate from ecologic and climatic and economic and somewhat cultural and even religious characteristics of each community(The best example vegetarians in India, banning of pork among Moslems and fish eating in water bounded countries).So, every changes in above-mentioned conditions , certainly will cause the changes of diet more and less .In some African countries which are in dry zones with no or little rainfall , animal breeding is difficult because food of people is prefered to animal feed.in

such condition people are content and happy with carbohydrates for surviving , In contrast , in south America like Brazil and Argentina because of sufficient rainfall and good pasture for grazing of their animals, their diets include more meat(protein) in compare to carbohydrates ,Likewise ,meat and milk in European countries .Complex of opportunities have caused different diets in different parts of planet. Mutually, any disorder in each of mentioned parameters will make the people change their diets unwillingly (based on their financial power and availability of diet).

What are the links between diets, consumption and consumers habits and food systems?

The diets are result of accepting the common nutritional habits which children have learned from their parents based on different before-mentioned conditions .sustainable production of food stuffs (availability) and financial power of consumers (To buy the

proper diet)are the most important links between diets and consumption. It is clear that food production is first necessity but not sufficient because processing and compatibility with consumers interest is something else. Therefore, r sustainable production of dominant diets, processing, packaging , marketing and management of wastes are the most important links of a food system.

How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

We have accepted that food system includes an consecutive links such as: Sustainable food production (animal source food or plant source food) , processing. Packaging ,distribution ,marketing and management of wastes .Now ,In case of any disorder or changes in each of these links ,Surely , diets will be hurt, and accordingly , the health and nutritional status of people will be hurt. In this connection , I say an clear example :In any area of planet, where different kind of war occurs , provision or carrying of feedstuffs becomes difficult or impossible .Such a condition for long period(one year or more) will cause the involved people be deprived of suitable diet ,so that .maybe they eat for a long time only carbohydrate to survive, which will be resulted in under nutrition , particularly ,deficiency of micro-nutrient .Another example : with progressing of science and arrival of new technology in life of mankind ,processing of foodstuffs (As a link of food system)also has improved so that different hygienic product of processed milk or meat which have more sustainability ,more opportunity for distribution to remote areas ,more availability to consumers and meeting the nutritional requirements.

What are the determinants of the changes in consumption?

In my opinion, depends on socio-economic ,cultural and environmental conditions ,There are many different determinants of the changes ,but some of them (At a glance) are as follow:

A-Increment of different kinds of diets consumed by people (Entrance of new foods which mostly are managed by medias and somewhat because of globalization (Which is inevitable).The best example the entrance of fast foods in the diet of mainly developing countries, so that, symbol of them is pizza, up to three or two decades ago ,maybe five percent of people(In developing countries) knew and were interested in eating pizza or other fast snacks. But , now , the young members of families are too much interested in eating pizza or other fast foods.

B-Changes in life style . In this connection, the best example which unfortun, is seen in planet is dwindling the rural population ,and increment of urban population .Surely ,diets which are common between urban and rural population is completely different ,and this is inevitable because of the life style .In urban areas not only the ingredients of diets differ ,but , methods of cooking and even processing systems are different.

C -Financial power of people which depends on economic performance of governments. No-doubt , rich people will buy full nutrient feeds to meet their body requirements (protein, minerals , vitamins etc..)

But when they become poor they must change their diet to buy only some less nutritive diets and are deprived to eat fresh and delicous fruits and……

D-Some imposed events , make people change their diets .some of these events are: Imposed wars , drought ,famine and……

E-Scarcity of feed stuffs ,which will make the people change quantity and quality of their

diets.

F-Improvement the awareness level of people about the role of diet in their health , body fitness ,obesity and prevention of diseases , surely they will change the quality and quantity of their diet.

How do the dynamics of food systems drive consumption patterns?

It is clear that(Doubt-less) food systems(Which I told about in answering question 3) in communities governs the majority of people in each community .An Persian proverb says: No body can swim contrary to the route of water. In this connection , important point is that whatever different links of food systems are full and well-functioned, Mutually , the consumption patterns will be improved .For example, if the processing of foods is hygienic and nutritive ,the people will not face diseases and meet their nutritional requirements, without deficiencies or obesity ,Vice-versa .Likewise, other links of food systems .Another example , in rural areas of the most developing countries, food systems ,is mainly restricted to producing manual processing of products without packaging and selling in local markets, this is the why we see the different consumption patterns in compare to urban areas.

How to shape and to address pathways to healthy nutrition?

The First and most important step in order to shape and address pathways to healthy nutrition is to promote the national awareness level about the healthy nutrition ,its social-economic and individual importance(benefits) ,and then the ways to achieve it .This is a bilateral responsibility as follow:

A-Responsibility of governments –all governmental policy-makers , presidents , related ministries ,parliaments etc…must emphasis on the healthy nutrition of their people .they must lead and legally manage and control the different links of food system which will result in healthy nutrition ,Simultaneously ,they must increase the awareness of people about healthy nutrition through national media(By using and extension of findings the universities ,research centers ,senior experts etc).

B-Responsibility of individuals-Each person of community not only him or herself must move in the way of healthy nutrition , but he or she must train his children(other persons of

community) about paying attention to healthy nutrition .Through such bilateral cooperation ,each person of community becomes like a well which itself oozes the water, not pour water in side ,manually .Now , he or she knows very well about disadvantages of over-nutrition , micro nutrient deficiencies ,full meeting requirement diet, vice versa, accordingly ,he does his best to address his pathway to a healthy nutrition.

What is the role of public policy in promoting healthy, nutritious and culturally appropria te food for all?

I think I have answered this question in question 6 ,But ,I cordially , believe that public policy h as the most and the most significant role in w about the dangers and disadvantages of an unsafe food .Why? because public policy makers have access to (Knows about)the food systems and cultural characteristics of community .They must compile the training and extension programs by using the newest technologies of the world, compatible with each population regarding to their social and cultural peculiarities.

How to build on the diversity of the existing food systems?

This is very interesting and attractive question for me .We must take into our consideration that diversity of existing food systems directly depends on diversity of all links of each food system from sustainable food production to consumption .Therefore , If we conserve and comprehensively improve the links of food system compatible with socio- economic and cultur al peculiarities of each region, not only we have conserved the diversity , but we have built on the same existing food system .I , seriously , believe that the only solution to achieve this aim (At least in developing countries) is comprehensive rural development.

What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

I think I have answered this question somewhat in last eight questions. But , again I refer to the key solution of comprehensive promotion of different process(the links) of food systems .For example :Farmers or animal breeders must be aware of the effects of using the chemical fertilizer or hormones. Food processors must be aware of vital importance of pollute or unsafe products ,economic parties such as cooperative must provide a balancing market so that people can afford to buy their favorite food .Consumers must be aware of the balancing food.They must know the importance of protein ,energy , vitamin and minerals .Likewise ,the disadvantages of over-nutrition -obesity… etc .The managing responsibility of these awareness is on the shoulder of governments , but the governments must use the Non-governmental parties ,Cooperatives ,training and extension services , universities… as executing agencies.

What action should different stakeholders, including governments, civil society and the pr ivate sector, take?

I have referred to the important and leading role of government in the way of the best efficiency of food systems in last 9 questions .but I believe that governments must have effective and significant role in compiling and controlling of food systems but BY civil society and private sector .Civil society and private sector as executer sector must seriously feel the shadow of governments in order to do their best in the each link of food system .but governments also must be aware of their economic policies along with taking into their consideration the socio-economic and cultural status and ecologic potentials of each region.

Thank you very much for your soon reply indicating the receipt Hamidreza Naderfard.Born in 1959

M.Sc in genetic and animal breeding

Head expert of buffalo development in the ministry of agriculture.Tehran.IRAN

80. Bjorn Marten, Campus West, Sweden

Summary

Organic farming and lowering meat consumption are key issues when considering the resilience side of food and nutrition security. An organic vegan diet will create food security even under severe draughts, heavy rains and hard winds. Leaving the factory farmed meat era behind will release more than 200 Mha, for production of grass that can be turned into biogas and synthetic diesel, thus creating a possibility leave the fossil fuel era for vehicles behind. Meat consumption and conventional farming are also contributing to an increasing violence on a global level. A vegan diet will pave the way for a global peace

Maintenance of soil fertility and nutritional value of crops are key challenges for humanity when considering creation of food security and proper health. Use of chemical fertilizer and linear flows of nutrients will never be sustainable since rock phosphate is a limited resource. Recycling of organic waste, including human manure to farming land is a cornerstone for creation of food and nutritional security. Pesticide residues found in drinking water and food are giant threats to human health. Nutritional values of crops cultivated with conventional farming have lost their nutritional values with up to 90% the last 50 years.

Organic farming using biomanure will maintain the crops nutritional values and secure the symbiosis between the plants and their root bacteria, thus the securing the plants immune defense.

Biogas technology is like introducing an industrial cow that produces biomanure and biogas as a byproduct. The biomanure can be spread directly in growing crops, since nutrients are mineralized during fermentation and can be taken up directly by the plants without losses. By using the bio manure in organic farming the crop yields can be increased compared to conventional farming. Cold plasma technology using biogas for small scale production of synthetic diesel creates a unique possibility to leave the fossil fuel era behind. The potential is giant since the synthetic diesel can be produced directly from biogas or by thermal gasification of any substrate with carbon like by example biomass, tires and waste from households.

The research report " Resource food" written by Elsa laurel a famous nutrionist and me, shows that introduction of a vegan diet in Sweden would release 1,2 Mha of arable land for biogas production and at the same time secure self sufficiency on organic food and vehicle fuel – biomethane and synthetic diesel. (See www.resursmat.se)

On a global level 240 Mha of arable land is used for producing cattle feed. If we lowered our meat consumption with 80% we would be able to release 200 Mha of arable land for growing grass and energy crops that together with any carbon waste can support all our vehicles with bio methane and synthetic diesel.

Meat production is now the biggest contributor to the global warming. When considering the land use linked to cattle feedstock now preventing introduction of a fossil fuel free vehicle fleet, meat production is responsible for around 50% of the total anthropogenic global greenhouse gas emissions.

By switching from the real cow to the industrial cow – the biogas plant , meat and milk producing farmers can get a sustainable alternative since the industrial cow feeds very well on grass and any organic waste including black water. In Sweden 4 out 5 fishes are used as feedstock for cattle. Thus declining fish populations can be restored by switching the cows.

Raw vegan food will lower the demand for cooking fuel and thus prevent deforestation and soil degradation. The only cooking fuel you need is for making safe water for soaking beans and cereals.

The beans can be stored for decades and will be waked up by soaking them over night.

Organic solar dried fruits and vegetables and sprouted beans will be excellent alternative from a nutritional and resilience perspective.

Further on biogas technology will make it possible to reclaim denuded land that makes it possible for exploiters of the rain forest to operate outside the rainforest. Rescuing of the rain forest is the most important issue right now since the rain forest is a rain cloud factory that distributes rain to surrounding countries. Clearing rain forests for meat production is like stealing rain from your neighbor and without rain there will be no food. It is also destruction of one of our most mportant carbon dioxide sinks.

Monoculture crop production is much more sensitive to extreme weather situations than organic farming and need to be abandoned once and for all from a soil erosion, nutritional, health, resource, biodiversity, energy, climate and resilience perspective.

Violence linked to food supply is now becoming highlighted. Resent research shows that consumption of pesticide residues are a source of violent behavior. Compared to vegetables meat has very high concentrations of residues from chemical pesticides since the cattle is eating the feed stock over and over again before it's slaughtered. Meat itself is also well known source of violent behavior since it increases the adrenalin levels.

One of the wisest conclusions ever drawn is "As long as we have slaughterhouses we will have battle fields ", a quotation from Leo Tolstoy that can become cornerstone for creation of rescuing plan for humanity and Planet Earth.

Vegan food is a fundamental cornerstone for a global peace and nutritional security. Time is ripe for switching from a meat to a vegan diet. In combination with biogas technology and vehicle fuel production our farmers will get a sustainable alternative that will contribute to maintain soil fertility for coming generations – together with a global the biggest challenges for humanity. We are all one people and have one common home to take care of - Planet Eart. Let's start now tomorrow might be to late.

Bjorn Marten, teacher at Campus West in Sustainable development and independent sustainable system designer

81. Stefano Prato, Civil Society Mechanism

Please find below the CSM Submission to the HLPE e-consultation on Food Systems & Nutrition.

CSM submission to the e-consultation for the HLPE Report on Food Systems & Nutrition

This document conveys the collective input of the Civil Society Mechanism of the CFS regarding the e-consultation on the Issue Note proposed by the HLPE Steering Committee with respect to the upcoming HLPE Report on Food Systems and Nutrition. The document is based on the ongoing work of the CSM Nutrition Working Group.

Preamble

The CSM welcomes the initiation of the preparatory process for the HLPE Report on "Food Systems and Nutrition" as it will be the cornerstone of CFS's engagement with nutrition.

The past years have witnessed a growing disconnect between food and nutrition, as counterintuitive as this may be. While the imperatives of nutritional emergencies may have contributed to this situation, fact remains that nutrition policy, where existing, has been characterized by significant fragmentation, excessive "technicalization" and, often, overwhelming "medicalization". Most recently, the scientific debate and the policy discourse shifted towards malnutrition in all its forms (this also being the key focus of the ICN2 framework), though significant asynchrony persists between such a narrative and the reality of most nutrition programmes, particularly at the level of international development cooperation.

On the contrary, understanding the challenge of malnutrition in all its forms requires a holistic and multidisciplinary analysis, one that combines political, socio-cultural and technical perspectives. Above all, it also requires full appreciation for diversity and the values of human dignity, equity, sustainability and sovereignty, while recognizing the need for urgency and justice. The first fundamental step is the firm re-connection of nutrition with food, with the understanding that food is the expression of values, cultures, social relations and people's self-determination, and that the act of feeding oneself and others embodies our sovereignty, ownership and empowerment. When breastfeeding, nourishing oneself and eating with one's family, friends, and community, we reaffirm our cultural identities, our ownership over our life course and our human dignity.

The CSM therefore expects that such a holistic understanding of food and nutrition will provide inspiration and guidance to the HLPE Report. Should this happen, the Report will greatly contribute to a new phase of nutrition research and policy that can address past fragmentation and re-build a new comprehensive narrative and practise on this critical dimension of human life.

Substantive considerations

1. **Contextualization of the Report within the CFS**: The Report on Food Systems and Nutrition should be a foundational report for the CFS work in Nutrition. It should provide a solid conceptual framework for CFS work in nutrition and propose a common language that all CFS constituencies

could refer to in future work. This would also include the harmonisation of current terminology used within the food and health angles of nutrition. At the same time, the report needs to be contextualized within the CFS, both in terms of its clear rights-based approach (with special but non-exclusive reference to the Right to Adequate Food and Nutrition, the Right to Water, the Right to Health, Women's Rights, and Workers' Rights) and its solid roots in the Global Strategic Framework and CFS's past policy products and recommendations;

2. **Holistic and rights-based understanding of nutrition**: The report should start with a holistic understanding of nutrition grounded in a solid multidisciplinary approach, recognising that the fragmentation of nutrition is, largely, the result of a fragmented and reductionist conceptual framework of agriculture, food and nutrition knowledge as well as of significant vested interests. Human beings do not feed on Iron, Calcium or Trans Fats, to mention just a few: They need a varied and healthy diet. However, larger socio-economic and political considerations influence whether babies are breastfeed or are bottle-fed, and whether adults eat meals that may or may not be diversified, healthy, safe, culturally appropriate and nutritionally adequate. The Report should therefore resist the temptation to limit its considerations to any artificial subset of nutrition issues, which may be identified to be more closely connected to food systems. For instance, a superficial analysis could suggest that breastfeeding may not be squarely related to food systems and should therefore only be marginally addressed by the report. On the contrary, it is impossible to disconnect the relation between food systems and nutrition, on one hand, from the fulfilment of women's and workers' rights and all the other factors that promote or hinder the enabling conditions for optimal breastfeeding and caring practices, on the other. Taking such a holistic approach on nutrition would therefore involve bridging and integrating the conceptual and normative framework of the right to adequate food and nutrition with the right to health and all other related rights, particularly women's rights, right to education, child rights, peasants' rights and workers' rights. The full realization of the right to adequate food and nutrition, in the context of the indivisibility of rights goes well beyond the replenishment of energy and nutrients. It results in numerous capabilities, which allow human beings – babies and adults alike – to protect themselves against diseases, be active, learn, develop, participate in social life, create, love, produce, and progress toward their full human potential.

At the same time, such a holistic approach should not lead to superficiality. For instance, understanding the relationship between agriculture, diet, nutrition and the growth and development of children, while intuitive, has proved to be complicated as the quality, in terms of nutrient content, of the diet is affected by crop varieties, soil fertility, water availability, processing and cooking techniques, as well as broader economic, social and political determinants. It is therefore essential that the holistic framework percolates down in the depth of the issues rather than remaining an umbrella with no sequel through the Report;

3. **Central public policy focus on promoting balanced, diversified, healthy and sustainable diets**: The Report should expose the key drivers of dietary patterns, taking into consideration both demand and supply side factors. However, rather than considering these drivers as given dynamics, the Report should emphasize the role of public policy in promoting diversified,

balanced, sustainable and healthy diets, seeking the convergence among the food, health and environmental policy dimensions of nutrition. People eat a different ratio of food products from the 3 newly defined food groups25, certainly due to their eating habits or wishes, but being heavily influenced by public policies which influence purchasing power, relative price, accessibility and marketing, with different implications for their nutrition and health26. In particular, the Report should expose the role of supply side factors, including the impact of commercial operators and related organisations, in creating demand and shaping the direction of dietary changes. These should include: the massive marketing of breastmilk substitutes, industrial products and animal-based foods; the enormous advertising influence of large food corporations and the social-appeal/status of certain foods that they generate; the misleading food labelling practises; the provisioning and advertising of unhealthy food in institutional settings (especially schools); and, the often close relationships between agribusiness and governments27, which translate into unfair subsidies, pricing and trading terms that favour the corporatized food system and generate artificially-low prices of industrial products. The Report should also give voice to emerging consumer movements that claim their rights to healthy, affordable, locally-sourced and accessible food options as well as to transparent information, and to be protected (particularly children) from aggressive marketing of breastmilk substitutes, unhealthy food and beverages that promote the increased incidence of diabetes, cardio-vascular diseases, some types of cancer and other diet-related non-communicable diseases. The way in which food systems are defined by communities themselves should also be given prominence. For example, traditional indigenous foods including gathered and wild foods make vital nutritional contributions to diets. Lastly, the promotion of sustainable food systems in institutional settings, especially schools, should be given special consideration, especially due to the importance of child and adolescent nutrition to prevent obesity and diet-related chronic disease in childhood and through the life course;

25 Three main groups are defined: unprocessed or minimally processed foods (group 1), processed culinary and food industry ingredients (group 2), and ultra-processed food products (group 3).

26 MONTEIRO, Carlos Augusto et al. A new classification of foods based on the extent and purpose of their processing. *Cad. Saúde Pública* [online]. 2010, vol.26, n.11 [cited 2016-01-05], pp. 2039-2049. Available from: ttp://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2010001100005&lng=en&nrm=iso ISSN 0102-311X. http://dx.doi.org/10.1590/S0102-311X2010001100005

27 These close relationship often translates into policies that speed industrialization of agriculture and livestock, including subsidies, tax incentives, limited or non-existent regulatory regimes, trade arrangements, public procurement, and few or no mechanisms to cost the enormous externalities of industrial production, or to recover these costs.

4. **It is essential for the report to properly articulate the diversity and interplay of food systems**: The Report should expose how different food systems shape significantly different nutritional outcomes and condition the emergence of different dietary patterns, with profound consequences in terms of the prevalence and incidence of diet-related non-communicable diseases. However, these different food systems cannot be seen in isolation one from the other and their interlinkages and power imbalances need to be addressed. In this context, the Report should not characterize the relation between different food systems as one of peaceful cohabitation and should rather expose the homogenizing, hegemonic and often predatory nature of the global industrial and corporatized food system and how it affects the viability of other food systems;

5. **Centrality of the role of smallholders as the main contributors to food security and nutrition**: The Report should clearly recognize the far-too-often neglected reality that family farmers, especially small-scale farmers and food producers, feed 70 percent of the world population and are the main investors in agriculture. It should also reaffirm the importance of territorial, internal and informal markets, as these are the dominant source of food consumed in the world, particularly in the Global South. Any dynamics that influence smallholders' rights, resources and capacities and undermine territorial, internal and informal markets have profound consequences on the evolution of food systems and their nutritional outcomes. In this respect, the Report should expose that, in the name of the grand narrative of feeding the planet, agricultural intensification and specialization are triggering the exit and exodus of millions of peasants, pastoralists and indigenous people, the disappearance of traditional crops and breeds, and creating enabling legal conditions for the further grabbing of land and water resources from their legitimate communities. The Report should also expose the often-violent displacement of communities and appropriation of their lands for the industrial agriculture and livestock industries, and the resultant loss of more sustainable livelihoods, with profound consequence on nutritional outcomes for these communities and the larger population. Furthermore, it should document the rise of oligopolies and extreme market concentration of inputs and the rapid, continued and unchallenged global consolidation of the industrial complex. Indeed, the continued expansion of the agro-industrial complex is undermining smallholders and their capacity to sustain their productive, territorial, social and political functions. It is itself generating the problem it claims to address;

6. **The Report should factor in the impact of climate change and highlight the implications of dietary patterns on environmental sustainability**: While agro-biodiversity is an important contributor to dietary diversity, changes in the length and nature of the growing season, increased variability in local weather patterns, including the increased incidence of extreme climate events, and other changes to agro-climatic factors may reduce the range of crops that can be grown. The consequences of climate change for undernutrition could be potentially devastating and significant efforts are required to strengthen mitigation and promote crop diversification and resilient adaptation strategies. While the Report should expose these important dynamics, it should also highlight the sustainability dimension of diets and the urgent need to significantly change the ecological footprint of agricultural production. In this context, agroecology should be recognized as the most effective pathway towards resilient, agro-biodiverse, and ecologically sound local food systems promoting and supporting diversified, healthy and sustainable diets;

7. **Locate the relation of food systems and nutrition in the broader context of the social, economic and political determinants of malnutrition in all its forms**: The centrality of human rights and the need for a holistic view of nutrition demand that the key focus of CFS policy concerns should be that of addressing the structural determinants of malnutrition in all its forms, rather than focusing on nutrition as a need to be delivered (obviously without ignoring or underestimating the urgency of nutrition and food emergencies). The focus on food systems should not therefore fail to recognize that the root causes and factors leading to malnutrition in all its forms are many, complex and multidimensional and cannot be separated from their broader social, political and economic context. It is therefore necessary for the Report to adopt a conceptual framework that is broad enough to explore how these determinants influence health and well-being rather than an individual-based framework, which focuses solely on education and/or technical and technological solutions to change production and consumption behaviours;

8. **The full realization of women's human rights**: Widespread violations of women's and girls' rights, women's lack of control of economic resources, lack of focus on adolescent girls' nutrition and reproductive health are some of the most pervasive determinants of malnutrition in all its forms. Despite some advances, most women in the world today continue to be subject to several layers of structural discrimination and violence, at societal, community and household levels. Not only does this have negative implications for the full enjoyment of their human potential, but it also contributes to rendering women and their rights invisible in food security and nutrition policies, leads to programmes that tend to overburden women even more with additional responsibilities, and promotes the intergenerational reproduction of malnutrition. The full realization of women's human rights, in equal footing with men, is therefore central to the pursuit of the right to adequate food and nutrition and the right to health and needs to be a central consideration of the Report. The prevention of femicide, the full access to education (not limited to enrolment but ensuring completion), equal pay for equal job, the provision of paid maternity benefits, the social recognition of unpaid work through social and community support mechanisms, the gendered redistribution of household tasks, the prevention of child, early and forced marriages, and the protection of women and girls against all forms of violence are all critical components of an effective strategy for tackling malnutrition in all its forms. Equally importantly, breastfeeding must be protected, promoted and supported, as the best alternative for mothers to feed their babies, and women must have all legal, public, community and family support that is required. All these dimensions closely interconnect with food systems and nutrition, and need to be addressed by the Report.

In conclusion, the CSM is confident that the HLPE Report will contribute to moving from food-product approaches to food systems that support diversified, balanced, sustainable and healthy diets. The ultimate consequence of all points above is the centrality of breastfeeding and diversified, balanced, sustainable and healthy diets versus industrial food products and other

product-based solutions28 that address specific deficiencies or forms of malnutrition. Such diets must be protected, promoted and supported by sustainable, local and regional food systems, firmly centred on small-scale sustainable food producers, protected against unfair competition, and aggressive marketing, and aligned with agro-ecological and food sovereignty principles. It is also essential to recognize the value of indigenous food systems and the critical role of locally sourced and collected foods, e.g. wild foods, and, more broadly, acknowledge the importance of recognising how communities and individuals define their food items.

This approach inextricably links healthy nutrition to agricultural biodiversity, which is a direct function of the genetic diversity maintained by small farmers, fishers, indigenous peoples and food producers, through their existing and diverse knowledge systems. These food and knowledge systems should be protected, promoted and supported by health, agricultural and other policies, rather than undermined by nutritional research and approaches that do not take them into account. Agroecology and food sovereignty therefore offer an alternative vision of food systems that provides for a concrete and viable path to diversified, balanced, sustainable and healthy diets.

Methodological considerations

1. It is important to underscore that experiential, rather than just scientific or technical knowledge, be considered in the elaboration of this report. To achieve a holistic understanding of food systems and nutrition all types of knowledge must be drawn on, not just quantitative research and "big data", but also ethnographies and individual testimonies. The distillation of knowledge into the Report should be an inclusive process in which all actors, especially rights-holders, should have the possibility to contribute their own knowledge and experiences. This might bring about methodological challenges, but it will ultimately result in better quality conclusions, as these will reflect the realities of people, local communities and their struggles;

2. Members of the HLPE team should be sensitive to the fact that academic research, especially in the nutrition and agricultural sciences, is often compromised by economic interests and industry financing. The HLPE should therefore make explicit effort to ensure the research products the Report will refer to have been carried out free of conflicts of interest, because the funding of science by industry has been shown to significantly influence results. For example, a meta-analysis found that studies conducted free of conflicts of interest were five times more likely to demonstrate a link between sugar-sweetened beverages and weight gain and/or obesity than industry-funded studies29;

28 It remains understood that product-based solutions may be important in nutritional emergencies and disaster relief conditions, provided these do not become opportunities to dump massive amounts of products that distort local systems, production and responses. This is especially the case as the concept of what represents an emergency is often ill defined.

29 BES-RASTROLLO, Maira et al. Financial Conflicts of Interest and Reporting Bias Regarding the Association between Sugar-Sweetened Beverages and Weight Gain: A Systematic Review of Systematic Reviews. *PLoS Medicine* [online]. December 31,

3. Along similar lines, it is essential that the HLPE Project Team be selected with the highest standards of integrity and independence from any vested interests. Ensuring robust safeguards against conflicts of interest is critical to ensure the independence, legitimacy, trustworthiness and credibility of HLPE products.

82. Suresh Babu, IFPRI, United States of America

Thank you for the opportunity to comment. The issues raised for discussion are valid. Quite large literature available onthe questions raised. Yet they are in different disciplines and the specialists in one ares often do have knowledge about the other and hence when it comes to beinging it all together we feel we dont have the information. The book by Per Pinsturp - Andersen and Margaret Biswa on Nutriton And Develop some 30 years ago covered some of the issues. A collegue of mine just commneted, " we have not acted on the knowledge we already have on these issues." While i am not sure of this, I do believe what is missing is the capcity to design and implement food system based nutrition interventions and nutrition driven food system design. Anyone who has the local knowldge in developing countries know that these issues are not even consdiered either by the researhcers or by the practitioners mainly due to wantof capacity. Hopefully we can develop some tools that will help in decentralised program design that will bring food systems and nutrition outcomes to gether. They are only in the policy statements and startegy dicument at best in some countries. Even there not much is known on how to proctically change the desings of the food ssystems to accomplish nutritional outcomes. This will require multidisciplinary cpacity of teaching nutritionist to ocnsider food ssytem variables and extension profesionals on nutritional objectives.

I share some efforts in this direction.

1. Kataki, P., and S. C. Babu, eds. 2002. ***Food Systems for Human Nutrition***. New York: Haworth Press.

You can google this book which has vaious chapters that could be useful for this on going discussion, form technology, insitutions, M&E to extension and policy and program design.

2. Babu, S. C., and P. Sanyal. 2009. ***Food Security, Poverty, and Nutrition Policy Analysis: Statistical Methods and Policy Applications.*** New York: Elsevier Publishers.

This book can help in building capcity for desinging local program interventions linking food systems and nutritional outcomes.

THE FOLLOWING PAPERS WILL BE USEFUL AS WELL

1. Babu, S. C. 2002. Food Systems for Improved Human Nutrition: Linking Agriculture, Nutrition and Productivity. ***Journal of Crop Production*** 6 (1/2): 7-30.

2013. Available from: http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001578 DOI: 10.1371/journal.pmed.1001578

2. Babu, S. 2002. Designing Nutrition Interventions with Food Systems: Planning, Communication, Monitoring and Evaluation. ***Journal of Crop Production*** 6 (1/2): 365-373.

3. Babu, S. C., and V. Rhoe. 2002. Agroforestry Systems for Food and Nutrition Security – Potentials, Pathways and Policy Research Needs. ***Journal of Crop Production*** 6 (1/2): 177-192.

4. Babu, S. C. 2000. Rural Nutrition Interventions with Indigenous Plant Foods - A Case Study of Vitamin A Deficiency in Malawi. ***Biotechnology, Agronomy, Society and Environment*** 4(3): 169-179.

5. Babu, S. C. 1999. Designing Decentralized Food Security and Nutrition Policies- A Knowledge-based System Approach in Malawi. ***Quarterly Journal of International Agriculture***38(1): 78-95.

THANK YOU

SURESH BABU

IFPRI

1999-Designing Decentralized Food Security and Nutrition Policy-a Knowledge based System Approach in Malawi

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/1999-Designing%20Decentralized%20Food%20Security%20and%20Nutrition%20Policy-a%20Knowledge%20based%20System%20Approach%20in%20Malawi_1.pdf

83. Dr Janine Pierce, University of South Australia, Australia

Sustainable Aquaculture: Five Capitals Approach

Sustainable aquaculture offers a key sustainable food source with potential to redress world food and protein shortages, and is also a proactive food security strategy to assist in addressing the worldwide issue of fish depletion. Sustaining global food supplies presents challenges, with most population growth in the future estimated to be in the poorest developing countries for whom protein sources are already in short supply. As a source of protein, aquaculture is increasingly being viewed as a viable solution to protein source shortages to feed ever increasing population numbers. Aquaculture is efficient to operate compared with beef and other grain dependent animal protein sources. Aquaculture ventures in developing countries such as oyster projects implemented by Australian Council of International Agricultural Research (ACIAR) in North Vietnam (Pierce and O'Connor,2014), have shown that not only can aquaculture ventures provide more quality protein sources into local diets, but also can provide an extra surplus income to buy other food staples and to enhance quality of life. Aquaculture without Frontiers (AwF) is a leading light in demonstrating how the many aquaculture projects they have assisted to start in developing countries can supplement food and income sources, and provide sustainable jobs. A key approach for success in AwF and ACIAR projects has been the 'Teach a Man to Fish' model to ensure they are predominantly locally driven by the community, with specialist voluntary expertise and funding provided.

Food and food security, whether in aquaculture production or other food production, needs to be viewed in the wider context of five different interdependent dimensions of sustainability capitals, none of which can be extricated from the equation. Natural environment needs to be considered in relation to sustainable farming as it underpins the enablement of food production for today and tomorrow. Human capital is another needed factor requiring knowledge and education for those who drive initiatives for food production both in implementation, in timely passing on of knowledge to those in communities, regular updating of new skills and knowledge, and flow on jobs. Social capital ensures commitment of the community to food ventures and in commitment to sustaining the environment, trust to share knowledge and to help others, whether in their businesses or in sharing of food. Flow on social capital other benefits include from mental and social wellbeing gained from providing for families and the community, and gainful employment. Institutional capital is required which covers ethical and sustainable guidelines for developing of businesses that also are for benefit of the local community and sustaining the natural environment, and governing bodies who have the responsibility to set guidelines and policies for sustainable food production. It is also important to monitor ways in which businesses are operated for sustainable production and good standards of food security through all the links in the supply chain. A further institutional capital consideration is to ensure ways people in the food production supply chain are treated is in accordance with human rights guidelines and fair pay. Produced capital is another essential part of the capitals equation as income generated by food businesses can support lifestyles, help alleviate poverty, fund education for children, and further enhance business ventures in the community. Aquaculture offers the opportunity to be a partial solution to world food security issues, but needs to be approached in a holistic way to ensure a five capitals approach for sustaining people and the planet. A positive model of implementation can be inspired by the AwF approach in developing countries for aquaculture projects.

84. Zahid Hossain Khan, GDS, Bangladesh

Dear Colleagues,

Greetings from Grameen Development Society (GDS) in Bangladesh.

We have the honor to you that Grameen Development Society (GDS) is a non Government Voluntary human development Organization. This Organization has been conducting various socio-economic development activities such as Water Supply & sanitation, Environment & Climate Change, Education, Health, awareness, legal aid, and protection to the persecuted women and children are worth mentioning.

As such if we get enlistment enrollment from you we will be able to speed up and extend and development our effort.

Under the circumstances we pray and hope that you would be kind enough to enlist enrollment our organization as member and oblige thereby.

Thanks & regards,

Mr.Zahid Hossain Khan
Executive Director
GDS - Grameen Development Society
"Khan Villa"

West Kawnia, Jail Bagan
Barisal- 8200, BANGLADESH
Phone- 088 0431 217 6528
Fax- 088 0431 2174905
Mobile- 088 017169 52749

skype-gdsbslbd
email-gdsbsl@gmail.com, bslgds@yahoo.com

Curriculum Vitae of Zahid Hossain Khan

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/CV_0.pdf

85. Max Julio, Maguiña Maza, Mexico

Estimados Srs. HLPE,

Agradezco por tomarme en cuenta, con respecto a la consulta electrónica sobre la nota propuesta, ya publiqué, a la vez adjunto en la presente.

El trabajo es parte de la ejecución de la tesis de Maestría, cuyos objetivos son:

OBJETIVO GENERAL

Determinar el equilibrio racional y sostenible del recurso Anchoveta en consumo humano indirecto (CHI) y con el desarrollo de consumo humano directo (CHD) para lograr la nutrición efectiva en todos los distritos del país, generando más empleo y más rentabilidad para el Perú.

OBJETIVOS ESPECÍFICOS

- Lograr la diversificación productiva del sector pesquero anchovetero, obteniendo de esta forma productos conservados fáciles de transportar hasta en zonas agrestes y ser consumidos sin complicaciones de preparación.

- Con la diversificación productiva logramos ampliar el parque industrial anchovetero, incrementando nuevos actores empresariales, generando más empleo y mejora de la rentabilidad nacional.

Con este trabajo se contribuye dentro de los "Objetivos de Desarrollo Sostenible", con los objetivos 1, 2, 3, 8, 9 y 14.

Espero ser útil en estos proyectos.

Que Dios bendiga a todo el equipo CFS-HLPE.

Atentamente,

Ing. Max Julio Maguiña Maza

EQUILIBRIO DEL USO RACIONAL Y SOSTENIBLE DE LA ANCHOVETA PARA CONSUMO HUMANO DIRECTO (CHD) Y CONSUMO HUMANO INDIRECTO (CHI) EN EL PERÚ

Por: Ing. Max Julio Maguiña Maza

PRESENTACIÓN

Existen muchas formas de alimentación o nutrición y teorías desarrolladas sobre el respecto, que probablemente pocos lo conozcan; en el caso del Perú es un país muy rico en alimentos y nutrientes, hablando en forma global del país, pero sin embargo estas riquezas alimentarias están mal distribuidas, existiendo poblaciones con hipernutrición y poblaciones que se encuentran con subnutrición, al punto de tener desnutrición crónica infantil (DCI) aproximadamente de 500 mil niños y lo peor de todo el estado peruano pretende reducir y eliminar la DCI tan solo con repotenciar la agricultura, olvidándose completamente que cuenta con una riqueza marina que solo le supera el país de China; el recurso anchoveta peruana está simplemente para pescarlo y llevarlo a las zonas de desnutrición, porque se puede consumir como cualquier otra especie de pescado; solo por su tamaño es más trabajoso en la limpieza; pero si no se puede transportar fresco, se puede procesar de diversas maneras obteniendo diferentes sub productos o productos terminados como: congelados, curados, enlatados, etc.

El tema de la alimentación en el Perú es ver nuestros macronutrientes y distribuirlos, priorizando al país hasta eliminar la desnutrición y luego exportar para generar divisas, pero no al revés.

El problema que radica entre los peruanos es la discriminación donde solo la gente con dinero puede consumir lo mejor y los alimentos de primera y lo que queda es para mercado nacional; así estén los precios por igual (mercado interno y externo), pero priorizan lo mejor para la exportación, esto no significa que se debe exportar la de baja calidad, lo que quiero decir es buscar la igualdad sin discriminación, buscando siempre la mejora de la producción para tener productos estándares y no estar en estas situaciones.

En el presente trabajo nos centraremos en encontrar el equilibrio del uso racional y sostenible de la anchoveta para consumo humano directo (CHD) y consumo humano indirecto (CHI) en el Perú; pero aunque por justicia todo este recurso debería de ser destinado para CHD; quiera Dios que en un futuro muy cercano sea así ya que es un recurso mejor diseñado para la nutrición humana y lamentablemente pocos lo vemos de esta manera.

El Perú captura aproximadamente 5 millones de toneladas por año, con un consumo per cápita de 30 kg, se puede alimentar a más de 160 millones de habitantes, pero lamentablemente ni los peruanos conocemos del potencial de este recurso, más por su riqueza nutricional.

Este recurso es útil desde el embarazo, etapa de la lactancia, para los niños en crecimiento y adultos mayores por su contenido en ácidos grasos poliinsaturados (omega 3) que posee; al ser conservados adecuadamente se puede trasladar a cualquier parte del mundo.

Pero la pregunta es, si conocemos todas estas bondades de este recurso ¿por qué no se prioriza para CHD?, es que detrás de todo esto hay poderosos intereses económicos que simplemente quieren enriquecerse sin importar el resto.

Se plantea el problema principal y los secundarios más la hipótesis.

El sector pesquero Peruano es una fuente importante generadora de divisas; pero sin embargo, solo es aprovechado por un grupo reducido de empresarios que hacen poco esfuerzo en la distribución, comercialización y diversificación productiva de estos recursos para consumo humano directo.

Según el Cuadro N° 1, datos de la FAO del 2014, muestra que el Perú es uno de los países del mundo más bendecidos por las riquezas naturales que poseemos, en este caso y en particular la pesca, según el cuadro el Perú se mantiene en el segundo lugar hasta el 2011 y el 2012 caemos al cuarto lugar con una pesca de 4.8 millones de toneladas al año; el Perú tiene un consumo per cápita de pescado de 23 kg, con este dato aproximadamente estamos consumiendo en forma interna algo de 690 mil toneladas de pescado 14% de la pesca nacional, teniendo un excedente de 86%, esto es de la pesca más baja anual que hemos tenido.

Cuadro N° 1

Pesca de captura marina: principales países productores

Clasificación de 2012	País	Continente	2003	2011	2012	Variación 2003-2012	Variación 2011-2012
			(Toneladas)			(Porcentaje)	
1	China	Asia	12 212 188	13 536 409	13 869 604	13,6	2,4
2	Indonesia	Asia	4 275 115	5 332 862	5 420 247	27,0	1,7
3	Estados Unidos de América	Américas	4 912 627	5 131 087	5 107 559	4,0	–0,5
4	Perú	Américas	6 053 120	8 211 716	4 807 923	–20,6	–41,5
5	Federación de Rusia	Asia/ Europa	3 090 798	4 005 737	4 068 850	31,6	1,6
6	Japón	Asia	4 626 904	3 741 222	3 611 384	–21,9	–3,5
7	India	Asia	2 954 796	3 250 099	3 402 405	15,1	4,7
8	Chile	Américas	3 612 048	3 063 467	2 572 881	–28,8	–16,0
9	Viet Nam	Asia	1 647 133	2 308 200	2 418 700	46,8	4,8
10	Myanmar	Asia	1 053 720	2 169 820	2 332 790	121,4	7,5
11	Noruega	Europa	2 548 353	2 281 856	2 149 802	–15,6	–5,8
12	Filipinas	Asia	2 033 325	2 171 327	2 127 046	4,6	–2,0
13	República de Corea	Asia	1 649 061	1 737 870	1 660 165	0,7	–4,5
14	Tailandia	Asia	2 651 223	1 610 418	1 612 073	–39,2	0,1
15	Malasia	Asia	1 283 256	1 373 105	1 472 239	14,7	7,2
16	México	Américas	1 257 699	1 452 970	1 467 790	16,7	1,0
17	Islandia	Europa	1 986 314	1 138 274	1 449 452	–27,0	27,3
18	Marruecos	África	916 988	949 881	1 158 474	26,3	22,0
Total 18 países principales			**58 764 668**	**63 466 320**	**60 709 384**	**3,3**	**–4,3**
Total mundial			**79 674 875**	**82 609 926**	**79 705 910**	**0,0**	**–3,5**
Proporción 18 países principales (%)			**73,8**	**76,8**	**76,2**		

Es inaudito que haya desnutrición en nuestro país teniendo tanta riqueza alimentaria y solo en el sector pesquero, sin contar con otros sectores, lo peor de todo es que el Estado no se da ni cuenta de ello, si observamos solamente el cuadro de las intervenciones que realiza el Ministerio de Desarrollo e Inclusión Social (MIDIS) (cuadro N° 4) en la intervención denominada: Seguridad Alimentaria, dentro de sus intervenciones efectivas indican el desarrollo de los proyectos productivos y dice textualmente: "*Proyectos para mejorar la producción de alimentos a través de la diseminación del uso de tecnologías para mejorar la producción agrícola y riego*", en ningún momento se recordaron de las riquezas marinas con que cuenta nuestro país y el recurso Anchoveta está para tomarlo y distribuirlo.

Cuadro N° 4

Intervenciones	Intervenciones efectivas	Responsables
Educación	**Educación** • Alfabetización y educación primaria para mujeres • Prevención de embarazos adolescentes	• MINEDU • MINSA
Seguridad alimentaria	**Proyectos productivos** • Proyectos para mejorar la producción de alimentos a través de la diseminación del uso de tecnologías para mejorar la producción agrícola y riego	• MINAG • Gobiernos Regionales y Locales

Elaboración: MIDIS-DGPE 2013.

En el mapa de la distribución de Desnutrición Crónica Infantil (DCI), los distritos costeros o ligados al mar no presentan desnutrición, casos aislados en Piura y Lambayeque (posteriormente veremos porque); los pobladores de estos distritos consumen mayormente recursos marinos, de cuatro a cinco veces por semana (según datos de los lugareños), esto nos hace ver que el estado tendría que tomar en cuenta estos recursos para priorizar la erradicación de la desnutrición crónica infantil, no con regalar el pescado sino vender, ya que el Perú cuenta con los recursos proteicos más baratos del planeta (la anchoveta).

Dentro de los recursos que existen en mayor cantidad en el Perú tenemos a la anchoveta con más del 90% de los recursos pesqueros marítimos desembarcados; otro recurso marino que tenemos en buena cantidad son en los moluscos la pota de 6% a 7% de todos los recursos marinos del Mar Peruano; además, existen otras especies en menos cantidad como el Atún, Bonito, Jurel, Caballa, Perico, la Merluza, liza, Lorna, Machete, Pejerrey y dentro de otros grupos tenemos los crustáceos (Cangrejo, Langostas, Langostinos, etc.), entre los moluscos tenemos al caracol, choro, conchas de abanico, el calamar, el pulpo y otros que se muestra dentro de la Tabla 1 (datos de desembarque del INEI).

Para el presente trabajo nos centraremos en el recurso marino pesquero "Anchoveta", es la que hay en mayor abundancia en el Mar de Grau y siempre y cuando cuidemos este recurso logrando la sostenibilidad.

TABLA 1: DESEMBARQUE DE RECURSOS MARÍTIMOS, SEGÚN ESPECIE, 2005 - 2012 (TMB)

Especie	2005	2006	2007	2008	2009	2010	2011	2012
Total	**9 353 306**	**6 983 463**	**7 178 699**	**7 362 907**	**6 874 404**	**4 221 093**	**8 211 718**	**4 807 567**
Total Pescados	**8 991 699**	**6 482 581**	**6 655 123**	**6 745 514**	**6 368 012**	**3 735 311**	**7 650 893**	**4 197 447**
Pelágicos 1/	**8 846 310**	**6 379 061**	**6 528 190**	**6 618 310**	**6 211 911**	**3 598 421**	**7 502 502**	**4 070 552**
Anchoveta	8 655 461	5 935 302	6 159 802	6 257 981	5 935 166	3 450 609	7 125 244	3 776 835
Atún	12 080	11 429	4 080	3 840	2 520	12 512	7 739	2 346
Bonito	3 093	13 365	9 706	42 871	29 122	13 144	14 654	21 586
Caballa	52 895	102 322	62 387	92 989	110 579	20 467	46 945	25 015
Jurel	80 663	277 568	254 426	169 537	74 719	17 559	257 241	179 743
Perico	37 078	33 755	35 333	49 473	57 152	53 359	43 688	58 894
Samasa	308	-	7	8	6	26 752	3 520	2 645
Sardina	838	89	56	5	26	17	63	142
Tiburón	3 894	5 231	2 393	1 606	2 621	4 002	3 408	3 346
Demersales 2/	**40 976**	**35 545**	**40 552**	**44 185**	**58 614**	**55 334**	**51 511**	**41 388**
Ayanque (Cachema)	2 944	1 030	1 983	1 920	2 522	4 138	4 323	2 473
Cabrilla	857	712	1 318	1 499	2 481	1 020	1 047	1 292
Coco	854	880	1 353	1 234	1 091	2 159	1 207	1 281
Lenguado	243	302	204	153	234	288	168	481
Merluza	30 600	29 441	31 634	34 929	47 161	41 108	37 646	30 719
Raya	672	1 386	974	1 185	845	1 440	1 235	1 728
Tollo	4 806	1 794	3 086	3 265	4 280	5 181	5 885	3 414
Costeros	**38 128**	**26 960**	**43 494**	**47 580**	**69 304**	**38 178**	**41 142**	**40 445**
(Pelágicos y Demersales)								
Cabinza	3 046	2 141	2 451	3 429	4 699	4 142	3 657	1 912
Cojinova	867	261	630	764	453	314	638	873
Corvina	774	1 650	2 380	428	459	368	774	502
Chita	274	212	214	114	154	86	103	81
Liza	6 975	4 233	10 549	16 185	18 594	10 779	13 335	15 428
Lorna	6 001	4 200	6 530	9 399	9 203	9 945	9 049	7 292
Machete	9 856	3 483	4 984	7 037	10 008	4 878	1 779	2 874
Pejerrey	9 964	10 464	14 867	9 946	12 617	7 406	11 556	11 013
Pintadilla	371	316	889	278	13 117	260	251	470
Otros Peces	**66 285**	**41 015**	**42 887**	**35 439**	**28 183**	**43 378**	**55 738**	**45 062**
Otros Grupos	**361 607**	**500 882**	**523 576**	**617 393**	**506 392**	**485 782**	**560 824**	**610 120**
Quelonios	**2**	**1**	**1**	**-**	**-**	**1**	**22**	**1**
Crustáceos	**12 366**	**15 729**	**20 274**	**17 484**	**19 434**	**22 183**	**31 040**	**33 424**
Cangrejo	2 006	1 256	1 628	1 750	1 894	1 578	1 797	2 105
Langosta	175	43	2	-	1	2	2	3
Langostino	9 881	12 032	14 496	15 562	17 518	20 337	29 221	31 315
Otros	304	2 398	4 148	172	21	266	20	1
Moluscos	**341 192**	**481 433**	**490 581**	**583 690**	**480 720**	**457 913**	**522 338**	**571 225**
Abalón	3 529	1 734	2 535	2 769	273	2 237	1 195	1 214
Caracol	3 124	3 695	2 838	4 061	3 317	2 389	2 894	2 321
Choro	9 006	5 253	8 769	8 894	11 071	9 022	9 171	6 822
Concha de Abanico	15 185	18 763	24 768	19 618	26 476	62 827	93 050	39 714
Macha	2	-	-	-	31	-	-	-
Almeja	1 962	2 899	2 793	1 906	326	765	491	622
Calamar	10 205	9 093	14 769	4 654	13 178	4 798	2 251	18 931
Pota	291 140	434 261	427 591	533 414	411 804	369 822	404 729	490 073
Pulpo	1 077	606	1 695	2 921	1 030	2 545	970	761
Otros	5 962	5 129	4 823	5 453	13 214	3 508	7 587	10 767
Equinodermos	**3 033**	**281**	**1 932**	**2 438**	**570**	**1 314**	**1 552**	**1 991**
Cetáceos Menores	**14**	**4**	**2**	**2**	**-**	**3**	**72**	**-**
Vegetales	**5 000**	**3 434**	**10 786**	**13 779**	**5 668**	**4 368**	**5 800**	**3 479**

1/ Pelágicos: Son las especies cuyo hábitat de vivencia es la superficie del mar.
2/ Demersales: Son las especies cuyo hábitat de vivencia son las profundidades del mar.
Fuente: Ministerio de la Producción - Dirección General de Políticas y Desarrollo Pesquero.

El recurso Anchoveta destinado a Consumo Humano Directo (CHD) es de 11% a 12%, aproximadamente 600 mil toneladas anuales del total desembarcado en promedio de los últimos años y representa aproximadamente 57% de utilización del total de los recursos marino pesqueros usados en CHD.

De esta parte de la pesca de CHD, una parte se exporta y otro es para mercado local, pero del total de anchoveta destinada para CHD realmente no es usado para este fin, cierta cantidad es desviada para Consumo Humano Indirecto (CHI), ya sea por baja calidad o en forma premeditada y otra gran parte en forma clandestina; determinar de esta manera la cantidad real usada en CHD es muy difícil porque casi no hay un manejo legal.

La meta del consumo per cápita del Estado por medio del Ministerio de la Producción según el PESEM del Ministerio de la Producción 2011 al 2015 es de 26.5 kg/hab. Para el año 2015, entonces se necesita aproximadamente 800 mil toneladas de pescado por año, pero como hemos visto el recurso pesquero no anchovetero es aproximadamente de 450 mil toneladas anuales, entonces la brecha por cubrir con el recurso Anchoveta es de 350 mil toneladas anuales, pero para poder eliminar la desnutrición tenemos que estar por encima del consumo per cápita de 30 kg/hab. y para lograr esto tenemos que llegar a un consumo de casi un millón de toneladas por año de recursos pesqueros o aproximadamente 550 mil toneladas de anchoveta por año.

Cuadro N° 2: PESEM - PRODUCE

Objetivos estratégicos	Indicadores	Línea de base	Metas al 2015
1. Contribuir a la seguridad alimentaria de la población promoviendo el consumo de pescado y productos pesqueros, principalmente en zonas altoandinas y de extrema pobreza.	Consumo per cápita aparente de pescado y productos pesqueros hidrobiológicos.	22.2 Kg / hab.	26.5 Kg / hab.
	Incremento del consumo per cápita de recursos hidrobiológicos en zonas altoandinas de Piura, Ancash, Ayacucho, Arequipa y Puno	0.4 Kg./Hab. (Piura) 2.5 Kg./Hab. (Ancash) 2.3 Kg./Hab. (Ayacucho) 0.7 Kg./Hab. (Arequipa) 0.6 Kg./Hab. (Puno)	6% anual
	Venta interna de productos hidrobiológicos de origen nacional para consumo humano directo (enlatado, congelado, curado y fresco).	465.4 mil TM	534.8 mil TM

Se tiene que realizar los análisis y cálculos adecuados como para determinar el uso racional de la anchoveta para CHD y CHI, las formas de tratamiento para sus ventas, que inicialmente esta dado con ventas en estado fresco, congelados, curados, enlatados y probablemente hidrolizados, siendo la secuencia apropiada de tratamiento y venta para CHD.

Con los análisis terminados se trata de determinar la capacidad de las nuevas plantas de procesamiento para poder llegar a un equilibro de pesca, procesamiento, la distribución y ventas, incrementando el número plantas procesadoras y de paso generando puestos de trabajo en todos los niveles.

PROBLEMAS SECUNDARIOS:

Si logramos ordenar adecuadamente la pesca y priorizamos el consumo de estos recursos por la mayoría de los peruanos y más aún por los pobladores de escasos recursos económicos ya que el precio a que compran las plantas harineras está alrededor de trescientos dólares americanos por tonelada, que al cambio sale un poco más de mil soles, esto quiere decir que un kilogramo de anchoveta puesto en muelle cuesta un sol y más el costo de manipuleo hasta hacer llegar a los puntos de venta otro sol más, siendo un monto accesible a dos soles el kilogramo. En estos momentos la anchoveta es la forma de proteína más barata que tiene el Perú y probablemente sea la más barata del mundo. Se tiene que promover su consumo en las zonas de extrema pobreza, son estas zonas las que cuentan con alto índice de desnutrición crónica infantil y alberga situaciones de Malnutrición Proteinoenergética (MPE) generando enfermedades como Marasmo y kwashiorkor que se genera por la deficiencia de alimentos energéticos y proteínicos. ***Las consecuencias de la injusta distribución de estos recursos generan DCI en los sectores menos favorecidos o sectores en pobreza y extrema pobreza del país.***

La cantidad de anchoveta destinada para CHI es de 5.3 millones de toneladas en promedio anual de los últimos años, casi toda esta cantidad de estos recursos están en manos de 10 empresas industriales que producen harina de pescado; se tiene que diversificar este recurso con la participación de más empresas peruanas, pero que generen mayor valor agregado, reducir el destino harinero y pasar a producir otros productos terminados para mercado nacional e internacional. El potencial alimentario de la anchoveta es muy alta ya que contiene proteínas con los aminoácidos esenciales completos, su aceite posee los ácidos grasos esenciales EPA y DHA que son parte principal de los ácidos grasos omega 3. Las plantas industriales de harina de pescado son de gran capacidad de procesamiento (de 100 a 250 t/h. de procesamiento), ocupando menos cantidad de mano de obra por tonelada procesada, tan solo al reducir sus capacidades de procesamiento por planta se tendría que levantar más plantas industriales y esto conlleva a contratar personal en todas las áreas; además, como consecuencia de la diversificación productiva anchovetera, se genera más puestos de trabajo en este sector, en todos los puestos laborales (Profesionales, técnicos y obreros), para esto el personal tiene que estar calificado. ***La pesca anchovetera está monopolizada por la gran empresa, con poco acceso de otras empresas que son capaces de desarrollar otros productos a base de este recurso.***

HIPÓTESIS

Determinamos el equilibrio racional del uso del recurso anchoveta entre CHI y CHD con diversas presentaciones, para todos los estratos sociales, logrados con diversos actores empresariales, que comercializan los productos terminados en todo el país y en el mercado externo.

COMPOSICIÓN NUTRICIONAL DE LA ANCHOVETA [6]

Alimento	Composición por 100 gramos por porción comestible						
Nombre	Energía	Proteína	Grasa	Fósforo	Hierro	Vitamina B1	Vitamina C
Anchoveta	171	21,0	9,0	276	1,4	0,01	8,7

Proteínas: La anchoveta es una de las carnes con mayor contenido proteico, esto significa que todos los que la consumimos tenemos mejores defensas, crecemos más y más rápido y nuestras heridas cicatrizan mejor. Las proteínas no sólo nos ayudan en la construcción de nuestro cuerpo sino que también favorecen un buen desarrollo mental. A diferencia de la carne de vacuno (res), la cual también contiene muchas proteínas, la anchoveta presenta menos colesterol. Esto la hace una carne más saludable y menos riesgosa, sobre todo para las personas con sobrepeso y aquellos que sufren del corazón. Las personas con una dieta rica en pescado tienden a ser más inteligentes y fuertes. El consumo de pescado mejora el desarrollo del sistema nervioso y el adecuado crecimiento físico, por lo tanto mejora el rendimiento cognoscitivo, la respuesta inmune, la capacidad de trabajo y bienestar. La carne de pescado, a diferencia de la carne de vacuno, contiene menos colágeno por lo que resulta más suave, jugoso y fácil de digerir.

Grasa: La diferencia entre la grasa de la carne (aves y mamíferos) y la del pescado es que la carne del pescado es rica en ácidos grasos insaturados. Estos últimos protegen al organismo ya que su consumo reduce el riesgo de enfermedades coronarias, como infartos, arteriosclerosis o embolias.

Dentro de las grasas del pescado, especialmente de la anchoveta, destaca un componente especial llamado Omega 3 que es un ácido graso poliinsaturado que añadido a la dieta disminuye los niveles de otras grasas, como el colesterol “malo” o LDL y los triglicéridos, que en exceso son perjudiciales para la salud. El aporte de energía proveniente de las grasas representa el 25-30% de la energía total que se requiere en el día. De ese total de grasas que se requiere, el 10% deben representar las grasas saturadas (manteca, piel de las carnes, etc.), 10% las grasas monosaturadas (aceitunas, palta, maní, etc.) y 10% las grasas poliinsaturadas (pescado, semillas de linaza, etc.).

El fósforo: es un ingrediente esencial del hueso, segundo en importancia después del calcio. Entre las tantas funciones que desempeña, resaltamos las siguientes: Ayuda en el crecimiento y reconstrucción a de los huesos, alivia los dolores provocados por la artritis, mantiene encías y dientes en buenas condiciones y ayuda al buen funcionamiento de los riñones.

Hierro: se encuentra en cada célula del cuerpo, forma parte de la sangre y es el encargado de transportar el oxígeno a todo el cuerpo. Al no tener la cantidad necesaria padecemos de anemia ferropénica. El hierro de origen animal es más fácil de absorber que el de origen vegetal. Sin embargo hay factores que facilitan su absorción como el consumo de vitamina C y la anchoveta contiene un alto porcentaje, lo que significa un mejor aprovechamiento del hierro.

Vitamina B1: o tiamina es usada por el cuerpo para descomponer los azúcares de los alimentos. Esta vitamina también es muy beneficiosa para el sistema nervioso y la actividad mental. También es importante para el buen estado de los músculos y evita la acumulación de grasa en las paredes de las arterias. Los requerimientos diarios promedio de vitamina B1 son de 0,6mg en niños de 1 a 13 años, 1,1mg en mujeres y 1,2 mg en hombres mayores de 14 años y 1,4mg en las mujeres en período de embarazo y lactancia.

Vitamina C: el Ácido Ascórbico o Vitamina C, es aquel que nos permite elaborar y mantener el colágeno en nuestro cuerpo (proteína fundamental para la fabricación de tejido conectivo, es decir del tejido que mantiene unidas todas las partes de nuestro cuerpo), ayuda a la cicatrización de heridas, encías sangrantes, etc.; ayuda a combatir las enfermedades víricas y bacterianas, favorece la disminución el colesterol en la sangre, ayuda a facilitar la absorción de hierro, etc. Se debe consumir pescado como mínimo tres veces a la semana en una cantidad de 100 a 150g cada vez. Se pueden consumir tanto los pescados blancos como los azules, pero la ventaja de los pescados azules es que nos aportan más cantidad de la grasa que necesitamos diariamente y así no tenemos que recurrir a otro tipo de grasas como las que aporta la carne de res o la mantequilla, que son grasas saturadas y no solo no tienen función de protección sobre el corazón y los vasos, sino que su exceso es perjudicial para los mismos.

PRODUCTOS A DESARROLLAR CON ANCHOVETA

Como se ha visto la anchoveta tiene varias potencialidades que al ser aprovechadas adecuadamente podría generar mayores efectos nutricionales en nuestro país, generando más puestos de trabajo y mejorando la rentabilidad nacional.

Dentro de estas potencialidades que el Estado juntamente con el ITP, están promoviendo son [(10)]:

1. PASTA UNTABLE DE ANCHOVETA: Anchoveta en pasta, lista para untar galletas o panes. Los ingredientes son; anchoveta, harina, aceite, cebolla, ajos, leche en polvo, pimienta y sal. Premiado en el concurso de inventores de Indecopi. Puede ser utilizada en el desayuno, aperitivo o relleno de alguna entrada.

2. BISTECK DE ANCHOVETA EN ACEITE VEGETAL: Anchoveta en filetes, obtenidos a partir de la mezcla del surimi de anchoveta y carne de anchoveta combinada con aceite, sal y especias. En proceso de patente ante Indecopi. Es sumamente rendidora y puede ser consumida como plato de fondo.

3. SOPA CONCENTRADA DE ANCHOVETA CON QUINUA: Elaborada con trozos de anchoveta y caldo concentrado de pescado. Los ingredientes son; anchoveta fresca en trozos, quinua, apio, zapallo, cebolla, ajo, pimienta, agua, sal y hojas de huacatay. Su gran contenido alimenticio la convierte en un alimento ideal y completo para personas de la tercera edad.

4. TUCO DE ANCHOVETA: Elaborado con anchoveta, pota molida y salsa de tomate. Es un producto listo para ser agregado a los fideos pre-cocidos o para rellenar empanadas y papa.

5. CHICHARRÓN DE ANCHOVETA: Anchoveta en trozos fritos, listos para comer. Los ingredientes son; anchoveta, aceite vegetal, harina, GMS y sal. Su versatilidad, permite utilizarlo en distintas ocasiones, individualmente con alguna salsa o crema y como acompañamiento de otros platos.

6. CHARQUI DE ANCHOVETA: Se obtiene a partir del pescado fresco, salado y posteriormente secado, lo que permite conservarlo por largos periodos a temperatura ambiente. Puede enriquecer cualquier tipo de preparación alimenticia de las zonas alto andinas, servirse acompañando unas papas nativas, ocas u ollucos, o sencillamente agregarse a cualquier sopa o guiso.

BIBLIOGRAFÍA

Biomasa en el Mar Peruano (Wikipedia, Mar de Graú), Noviembre 2015, última modificación: https://es.wikipedia.org/wiki/Mar_de_Grau

Principales recursos del Mar Peruano (FAO, Visión general del sector pesquero nacional), Mayo 2010: ftp://ftp.fao.org/Fi/DOCUMENT/fcp/es/FI_CP_PE.pdf

La malnutrición proteinoenergética (FAO, NUTRICIÓN HUMANA EN EL MUNDO EN DESARROLLO, Roma 2002:

http://www.fao.org/docrep/006/w0073s/w0073s0g.htm#TopOfPage

Reporte Perú, Desnutrición Crónica Infantil, metas al 2016, MIDIS, Abril 2013: http://www.midis.gob.pe/images/direcciones/dgpye/reporte_peru.pdf

Destino de la anchoveta para CHI, Reportes Financieros Centrum Católica, Reporte sectorial: sector pesca, Noviembre 2009.

Composición Nutricional de la anchoveta, Programa COME ANCHOVETA, Universidad Peruana Cayetano Heredia, Centro para la Sostenibilidad Ambiental. http://www.anchoveta.info/index.php?option=com_content&task=view&id=68&Itemid=63

Ácidos grasos omega 3: Biblioteca electrónica de documentación científica sobre medidas nutricionales, OMS, abril 2011,

http://www.who.int/elena/titles/bbc/fish_oil_pregnancy/es/

FAO, Recomendaciones para Prevención de Enfermedades Cardiovasculares, ftp://ftp.fao.org/docrep/fao/006/ac911s/ac911s01.pdf.

INEI, Consumo de alimentos y bebidas, Perú: consumo per cápita de los principales alimentos 2008-2009,

https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib1028/cap01.pdf

Ministerio de la Producción, Presentan nuevos productos de anchoveta para llegar a más peruanos, enero 2014.

86. Lal Manavado, University of Oslo, Norway

Comments on the CSM submission to the e-consultation on the HLPE Report on Food Systems & Nutrition

I am happy to see that the CSM submission embodies three crucial aspects of what is needed to alleviate world's hunger in a holistic manner. These are, the necessity of paying due attention to the variations in one's food needs with respect to one's whole life-span, the importance of food culture, and the inequity inherent in the commercialisation of food supply. Moreover, it is heartening to see that it regards eating something more than mere intake of chemicals derived from some animal, flowering plant, fancy algae or a fungus (Truffles exempted). It is high-time that we stopped thinking about eating as akin to putting petrol, engine oil and water to some engine, and what affects its

performance as a thing that can be fixed by some learned bio-mechanic. Call it 'medicalisation', if you will.

I cannot agree more on that reductive research has indeed blinded us to what we gain by eating as civilised beings by drowning us in data rather than serving to enhance the taste, smell, colour, texture, temperature, etc., experienced when we eat, not to mention the pleasures of companionship one may recall from family meals even when they are far from being cordon bleu cuisine.

I applaud the explicit emphasis on the integrity and impartiality of the panel, which in my experience, has never received this degree of attention. Its importance needs no further justification.

However, I think two points could have been given a greater priority, viz., the qualitative and the quantitative balance of our environment, without which no yielder system (see my previous comments on this forum on 27th January) could exist.

My point of departure is simple, viz., humans are as much a part of our environment as fleas, whales or giant redwoods. The possibility of their continued existence depends on the possibility of their procuring certain resources and the existence of certain physical conditions like appropriate temperature, levels of radiation, etc.

Those resources may be of biological origin, or mineral like water, Oxygen, etc. But their availability or accessibility is finite.

In addition to the purely physical mechanisms like heat dissipation by convection, rainfall, etc., biological evolution has introduced means to recycle those resources and to buffer the extremes of those physical conditions, which enables life to continue on earth.

The first part of that means seems to have been evolved to curtail resource depletion due to the proliferation of photosynthesising life forms by introducing death due to degeneration brought about by asexual reproduction. This led to the need to evolve life forms that could subsist on the dead, viz. saprophytism.

Gradually, predation in its inclusive sense seems to have emerged to supplement the activity of the saprophytes in recycling the necessary mineral resources, and to enhance the felicity of the local physical conditions or climate. After this emergence of the herbivores, imbalance between their birth and death rates set the scene for the emergence of carnivores, and then omnivores.

So, it is reasonable to suggest that the possibility of our continued existence depends on the possibility of adequately recycling the biological and mineral resources on which existence of all life depends, and the appropriate distribution of life on earth required to enhance the salubrity of the climate.

Leaving aside the adverse natural phenomena, recycling of resources and climate buffering depends on the qualitative and the quantitative equilibrium among the living species. Its qualitative dimension involves bio-diversity, while its quantitative counterpart reflects the population of each species including man.

Therefore, I find it difficult to envision any approach to our current problem succeeding, unless we are willing to give the highest priority to halting human population growth and to strict environmental protection, and its regeneration. I think a Huxlean 'Brave New World' is as appealing as a 'nuclear winter', for both entail formication of mankind, i.e., turning man into a programmed living object like an ant.

I agree that it is vital to view people's ability to procure food as something that should never be governed only by commercial considerations. However, I am a little uncertain about the possibility of achieving some worthwhile results by declaring that everyone has a right to an adequate amount of appropriate food.

Perhaps, it may be politically possible to get most nations to sign such a declaration, but although signing of signatures could be an impressive sight, it could hardly quench the fire gnawing at millions of hungry bellies, unless one has the means of proclaiming that right.

The need to satisfy hunger is urgent and uncontroversial. So, I am firmly convinced that the only way to make right to food manifest itself in some tangible form, is to expand small farming as submitted, halt commercial industrialisation of food supply, and most importantly, replace the multi-national monoliths of food by cooperatives.

Of course, all this will remain mere words if the post-2015 agenda is aimed at traditional 'development', which is the cause of present misery in many areas of life. Perhaps, it is still not too late to integrate the post 2015 agenda into a logically cohesive whole that would benefit most of the deprived among us even though such a move may ruffle a few political feathers, and tug at many a bunch of expert whiskers.

Cheers!

Lal Manavado.

87. Stephen Adejoro, Livestock Industry Foundation for Africa, Nigeria

It is a great opportunity for me to be invited to make my humble contribution to this global topic of nutrition and food system and the link to diet, health and food security.

Food system is an age long proceedure and strategies of developing infrastructure and technology of bringing food to the table of various communitities from the inception of human creation.

The scripture attested to the role of man in tendering the garden of Aden as the first habitat of man in creation.Since then diverse food system has come into exixtence both for plant food and the animal food all for making food of plant and animal origin available for the human race

Food system of plant and animal food varied socioculturally from one region of the globe to another and it is largely defined by culture inheritance dietary preference and the climate

By and large various food systems had improved from the traditional primitive and small scale holdings, to sophisticated systems due to improved technology which commands expansion in acrage and population for crops and livestock respectively

The improvement in themselves are the off shoot of consumers demand, appreciation of health benefit and globaldecline in availability of food. Diet is of multiracial diversity which can stimulate demand and improvement in a given food system when the community make a higher demands and recognise the benefit of including such food from the system in their menu

When food system changes either by the loss of the native tranfered technology, or through skillfuf integration of recent innovation, the demand for food produced by such system may be lost to the community or be exanded in output.

I would like to bring some local examples from African communities, where native food produced by some ancient food system are no longer found in many communities of Africa today or in most cases are extinct.

Cetain food recipes of good health benefit that arose from their system of planting, harvesting, and processing that are generational health recipee are in extintion in many countries, for example the food system and food recipe from Balsam plant, moringa. varieties venonia amygelina Ewuro IN YORUBA RACE OF NIGERIA0 QUAIL AND QUAIL EGG PRODUCTION ARE FAST LOOSING RECOGNITION BY THE LARGER PROPOTION OF THE NIGERIA COMMUNITY, IT IS OBVIOUS THEREFORE THAT THE DYNAMIC OF OF FOOD SYSTEM GLOBALLY IS RESPONSIBLE FOR TECHNOLOGY TRANSFER, DEVELOPMENT OF INNOVATIVE PRODUCTS, AND WIDER ACCEPTABILITY ACROSS THE GLOBE, SO WE NEED TO TAKE ADVANTAGE OF THIS DYNAMICS TOSHAPE GLOBAL PATH WAY TO HEALTH AND NUTRITION BY ENCOURAGING FOOD RECIPE IMPORTS AND EXPORT GLOBALLY EVEN IF THE SYSTEM IS ALIEN TO OTHER REGIONS OF THE WORLD, BUT GOVERNMENT MUST PUT ON GROUND STANDARD, SAFETY REGULATIONS AND HACCP if food system and diet peculiar to a regiom must be widely consumed.

This is why Government must must back up regulatory bodies with laws and specified penalties for contravention.

The world population will record an increase of 3 billion by the year 2050 barely 34 years to this time and the effect of climate change coming as flood draught and emerging insurgences globally make the discussion on this topic a preventive strategy to improve world food security

Thank you for giving me this opportunity to contribute to this topic.

Dr Stephen Adejoro is an international Independent Animal food security consultant and a co founder of the Livestock Industry Foundation for Africa.

88. Ted Greiner, Brazil

Much needed in this time when nutrition is increasingly being equated with pharmaceutic supplements and powders, ready to eat fortified foods, and genetically modified plants. Improving the diets of low-income populations is virtually never on the development agenda any more.

Well thought through and well worded list of the issues that need to be addressed.

89. Diana Lee-Smith, Mazingira Institute, Kenya

The issues paper is broad and concise. As others have pointed out, it is an enormous task to review all the evidence (there is no suggestion of collecting new evidence). The issues paper rightly emphasizes the need to identify the drivers of change in food systems and consumer behaviours. I agree with this approach and although the issues paper does not name drivers i believe urbanization to be one driver that needs to be looked at. Food policy (or the absence of) is another.

The issues paper does not take a normative position with respect to types and characteristics of food systems. Many comments so far take strong normative positions, and there is no doubt that the HLPE

Report on Nutrition and Food Systems will be normative, because it must determine actions to be taken to produce better nutritional outcomes.

It is likely that a typology of food systems might be needed, using a broad range of evidence sources, and an assessment of their effectiveness in terms of nutritional outcomes, again evidence-based.

My own view is that dietary diversity is a key factor in good nutritional outcomes and I believe this is supported by evidence. As noted in a previous comment, i am not comfortable with the term "over-nutrition", as it does not accurately describe some conditions which are really forms of malnutrition.

90. Mark Holderness, Global Forum on Agricultural Research, Italy

Changing diets also mean changing perceptions about 'cheap' food. High carbohydrate and sugar-based diets may fill bellies and be cheaply available at point of sale, yet are strongly associated with obesity and diabetes.

They are 'cheap' because they are easily produced, moved around and stored for long periods before consumption. There are large profits made on their re-processing and sale, satisfying human cravings and meeting short-term hunger needs.

Yet cheap is a relative term. Why are we still not including the healthcare costs of non-communicable diseases caused by bad diets into the overall costs of production and consumption? In the USA for example, the total value of the agriculture industry is $374 billion p.a., yet the healthcare cost of diabetes is around $500 billion (Harvard & WEF)

The emphasis in agriculture is still way too much on the production end - producing more of such food types has become a mantra - often even including state subsidies to do so, yet ignoring the real costs entailed. This is without even considering the considerable environmental and societal costs of their production systems compared to alternatives.

We need to re-think and re-imagine our entire agri-food systems, their real costs and their drivers, not just our diets.

91. Abdul Rahim Khan Post Harvest Research Centre, Pakistan

Farmers' efforts are focused to maximize the production. After famers and traders spay less efforts to retention the quality and quantity of their product. It happen due to the least interest because after harvesting famers and traders just looking for their profits.

Nutrition and Food system demand the equal attention on pre-harvest and post-harvest phases which help to provide the quality food to hunger people. At farm gate post-harvest & better processing (not industrialization) can cope the present situation and give a pave to meet the future challenges of population. It also helps to minimize the poverty among farming community.

92. Dare Akerele, Nigeria

Not doubts substantial progress has been made globally towards combating hunger and malnutrition. Nevertheless, consumption of energy dense-processed foods is on the increase especially in developing countries with the attendance effects on the rising rates of overweight and obesity globally, and the slow progress in the reduction of micronutrient malnutrition \in many developing countries. Encouraging food consumption variety is emphatically germane in this context as most households in developing countries are poor and subsist on monotonous diets of poor nutritional quality. Given that the livelihoods of the majority of people in these regions are connected to agriculture, this review, again, presents the opportunity to raise the fundamental question of whether an agricultural development pathway that prioritizes transformation of the food systems for improved food consumption diversity could provide new avenues for addressing the persistent food insecurity, malnutrition and related health ills especially in developing countries. This is therefore the right time to re-examine how environmentally sustainable are the agricultural production practices, as well as food processing, distribution and consumption choices being made by various actors in the food systems, locally, nationally, at the region and worldwide. Against this background, there is the need to examine the land use system, land tenure security, governance of land and natural resources and the roles of institutions involved in its management, the legal frameworks and other socioeconomic concerns in relation to sustainable food production. How not to marginalize the livelihood plights of vulnerable populations should be of great concerns in this regards. This is germane especially in Africa's setting where lands are mostly informally administered with grabbing easier for some "powerful elements". Involvement of the civil societies/NGO cannot be overemphasized in this matter. This is also the time re-echo the need to promote sustainable production of indigenous, healthy and nutritious foods that are almost disappearing from the food baskets as they will enriched the baskets of food choices and biodiversity. The determinants of, and incentives to be provided to stimulate farmers' willingness to grow such crops/foods as well as adopt sustainable farm production practice must be examined. While the need to promote sustainable food consumption choices and practices are very critical, what constitutes an "acceptable index of healthy diets/foods" from sustainable development point of view would remain a task to be pursued. Studies that seek to uncover the underlying reasons for dietary changes and willingness to consume sustainably as well as the roles of food industries and development appropriate regulations are also very critical issues.

93. Moises David Rojas Peña, Dominican Republic

DESARROLLO DE AFRICA Y SU DIMENSIONES SOCIALES

La robusta expansión económica registrada en África durante el último decenio ha sentado las bases para mejorar el nivel de vida en todo el continente. Aunque los niveles de pobreza siguen siendo inaceptablemente elevados, se ha logrado un progreso significativo en el que la pobreza ha disminuido continuamente desde mediados de los años noventa.

Se están adoptando medidas concretas para mejorar la gobernanza política, económica y empresarial. Treinta y seis países se han adherido voluntariamente al Mecanismo Africano de Evaluación entre Pares, programa emblemático de gobernanza de la Nueva Alianza para el Desarrollo de África, y la mitad de ellos han sido examinados por sus pares.

El continente debería aplicar políticas de transformación estructural que aceleren el crecimiento de la productividad mediante la modernización y la innovación tecnológicas y el aprendizaje práctico, y

aplicando políticas macroeconómicas y sociales inclusivas, en particular políticas que promuevan el empleo productivo y el trabajo decente e inversiones sostenidas en materia de educación, atención de la salud, agricultura e infraestructura. La elevada demanda interna impulsada por una clase media creciente permite abrigar la esperanza de que la economía de África seguirá creciendo a pesar de las enormes incertidumbres generadas por la reducción de la demanda mundial de las exportaciones de los principales productos básicos del continente.

La economía de África sigue siendo una de las de más rápido crecimiento en el mundo, lo que brinda una condición necesaria para el progreso social. Ese crecimiento ha ocurrido pese a los efectos adversos de la caída de los precios de los productos básicos y de la gravedad del brote de la enfermedad del Ébola en algunos países.

Se prevé que el crecimiento de la economía africana sea del 4,6% en 2015, frente al 3,5% que se registró en 2014. Según Situación y perspectivas de la economía mundial 2015, se prevé también que el impulso del crecimiento continúe y que el crecimiento del producto interno bruto (PIB) se acelere y alcance el 4,9% en 2016.

La impresionante recuperación de África se puede atribuir al auge de los precios de los productos básicos y los descubrimientos de minerales, las políticas económicas racionales y la gestión de las finanzas públicas, la mejora de la gobernanza y el fortalecimiento de las instituciones, el aumento de las inversiones públicas y privadas en sectores esenciales como la infraestructura, y el volumen considerable de las corrientes de inversión extranjera directa y las remesas de los migrantes. Desde 2000, las corrientes financieras externas recibidas por el continente se han cuadruplicado, superando los 200.000 millones de dólares en 2014.

Por otra parte, el crecimiento moderado del sector agrícola también ha contribuido al crecimiento general y a la reducción de la pobreza. África también se está beneficiando de tendencias demográficas favorables como la disminución de las tasas de fecundidad y de mortalidad infantil.

Un factor muy preocupante es la falta de recursos financieros suficientes para ejecutar los programas y proyectos de desarrollo que fomenten la inclusión social y eleven los niveles de vida. A raíz de esa falta, el continente afronta graves dificultades a la hora de encarar altos niveles de pobreza, desigualdad y desempleo generalizado, especialmente entre los jóvenes, las mujeres y otros grupos sociales desfavorecidos.

En la lucha contra la pobreza y la desigualdad social, África no ha experimentado un éxito comparable. Sin embargo, el continente ha alcanzado progresos considerables recientemente: se estima que un 39,6% de la población de África vivía con menos de 1,25 dólares diarios en 2011, frente a un 46,6% en 1990. En África Subsahariana, el 46,6% de la población vivía con menos de 1,25 dólares diarios en 2011, frente a un 56,6% en 1990. Los datos basados en su umbral de pobreza actualizado de 1,90 dólares diarios, el 36,1% de la población de África vivía en la pobreza extrema en 2012. Respecto de África Subsahariana, las estimaciones relativas a 2012 basadas en la medida de 1,90 dólares diarios fueron del 42,6%, frente a un 56% en 1990. En 2012, la pobreza extrema en África del Norte fue del 3,4%.

Si bien el porcentaje de personas que viven en la pobreza es mucho menor que en 1990, desde 2011, África ha registrado el mayor número absoluto de personas que viven en la pobreza absoluta en el mundo, por lo que ha superado a Asia Meridional, región que ha registrado niveles históricamente similares de pobreza. Según las estimaciones, 393,5 millones de personas vivían en la pobreza absoluta en África en 2011, frente a 361,7 millones en Asia Meridional. En 2012, el número de personas que

vivía en la pobreza absoluta disminuyó a 388,8 millones en África Subsahariana y a 309,2 millones en Asia Meridional.

Hay que destacar que el progreso ha sido desigual en el plano nacional; los niveles de pobreza han disminuido mucho más rápido en unos cuantos países. Tomando como base el umbral de pobreza de 1,25 dólares diarios, los datos indican que en 2011 la gran mayoría de las personas que se hallaban en la pobreza extrema en África vivían en algunos de los países más poblados del continente. El porcentaje de personas que vivían con menos de 1,25 dólares diarios fue del 36,8% en Etiopía, el 87,8% en Madagascar, el 60,1% en Nigeria, el 84% en la República Democrática del Congo y el 52,5% en la República Unida de Tanzanía. Dado el tamaño global de su población, los progresos en esos países tendrán efectos importantes en los niveles de pobreza en el plano continental.

En 2011, la tasa de pobreza extrema fue del 79,8% en Burundi, el 45,7% en Lesotho, el 71,6% en Malawi y el 63% en Rwanda. En términos porcentuales, en 2012 hubo cuatro países donde la concentración de la pobreza superó el 70%: en Madagascar, el 82,1% de la población vivía con menos de 1,90 dólares diarios; a este país le siguiero n Burundi (77,2%), la República Democrática del Congo (77,2%) y Malawi (70,8%).

La labor de los países con miras a ejecutar la Agenda 2063 de la Unión Africana y la Agenda 2030 para el Desarrollo Sostenible, para que las estrategias de erradicación de la pobreza den resultados positivos, estas deben ser específicas para los distintos contextos y adaptarse a las condiciones iniciales de cada país. Por ejemplo, las políticas que debe aplicar el Gabón para erradicar la pobreza, cuyo nivel es del 6,7%, diferirán notablemente de la combinación de políticas que ha de aplicar Madagascar a fin de reducir de manera considerable su nivel de pobreza, que es del 82,1%.

Las iniciativas encaminadas a reducir la pobreza y fomentar el crecimiento inclusivo en toda África siguen siendo socavadas por la desigualdad sumamente elevada y, en algunos casos, por el aumento de la desigualdad. Según un documento de políticas del Fondo Monetario Internacional de 2014, titulado “Política fiscal y desigualdad del ingreso”, el promedio de la desigualdad aumentó en más de 3 puntos porcentuales en África del Norte y más de una cuarta parte de las economías de África Subsahariana.

Un análisis del nexo entre el crecimiento, la desigualdad y la pobreza en África Subsahariana reveló que el crecimiento de los ingresos y los cambios de la desigualdad se reforzaban mutuamente en la reducción de la pobreza en Burkina Faso, Burundi, el Camerún, Etiopía, Mozambique, el Níger, Nigeria y el Senegal. La disminución de la desigualdad fue un factor dominante en la reducción de la pobreza en Guinea-Bissau y Lesotho. Por otra parte, la desigualdad empeoró en Côte d’Ivoire, Kenya, Mauritania y Zambia, donde la pobreza registró un aumento.

Los efectos negativos que tiene la desigualdad de los ingresos en el crecimiento y en la reducción de la pobreza se agravan más por el alto grado de desigualdad de oportunidades, en particular en la educación, la atención de la salud y los bienes de producción. Los altos niveles de desigualdad de los ingresos limitan la posibilidad de traducir el crecimiento de los ingresos en una reducción de la pobreza, y al mismo tiempo la desigualdad de oportunidades dificulta a los grupos sociales desfavorecidos y marginados adquirir la educación y los conocimientos especializados que podrían permitirles ser competitivos en el mercado laboral y participar en los procesos de formulación de políticas a nivel local y nacional. Para disminuir de manera significativa la profundidad y la gravedad de la pobreza, el crecimiento de África debe ser sostenido e inclusivo e ir acompañado de reducciones significativas de la desigualdad. Esto exigiría la aplicación conjunta de políticas macroeconómicas y

sociales para asegurar que los ingresos medios de los sectores más pobres aumenten a un ritmo mucho más rápido que los ingresos del promedio de la población.

La agricultura y la seguridad alimentaria

De acuerdo con la Nueva Alianza, África tiene un gran potencial para lograr la autosuficiencia alimentaria. Sin embargo, el continente sigue afrontando obstáculos considerables para el logro de la seguridad alimentaria, debido a la sequía crónica, los efectos del cambio climático, los suelos con déficit de nutrientes, la inestabilidad de los precios de los alimentos y la insuficiencia de las inversiones en la agricultura.

En África en su conjunto, aproximadamente 232,5 millones de personas estaban subalimentadas en el período 2014-2016. De estas, 220 millones de personas viven en África Subsahariana. La prevalencia de la subalimentación descendió del 27,6% en 1990-1992 al 20% en 2014-2016. Sin embargo, el número absoluto de personas subalimentadas en África aumentó de 181,7 millones en el período 1990-1992 a 232,5 millones en el período 2014-2016. Poco menos de 1 de cada 3 personas (el 29,3%) de los 795 millones de personas en el mundo que no tienen alimentos suficientes diariamente vive en África. En África Subsahariana, poco menos de 1 de cada 4 personas (el 23,2% de la población) también está subalimentada.

El Programa Mundial de Alimentos ha planteado la inquietud de que las características meteorológicas erráticas del Cuerno de África y África Meridional podrían ser devastadoras para las cosechas y dar lugar a una grave escasez alimentaria. En Etiopía se estima que 8,2 millones de personas se ven afectadas por la peor sequía registrada en más de un decenio. En Etiopía se estima que 8,2 millones de personas se ven afectadas por la peor sequía registrada en más de un decenio. En Malawi, más de 2,8 millones de personas padecen hambre tras las inundaciones y las sequías graves. Swazilandia también está registrando el sexto año consecutivo de malas cosechas, el peor de los últimos 25 años. Las perspectivas para lograr la seguridad alimentaria en la subregión también se están socavando a raíz de la posibilidad de que resulten malas las cosechas en Sudáfrica, el mayor productor de maíz de la región.

A fin de incrementar la contribución del sector agrícola al crecimiento económico y la prosperidad compartida, y aprovechar su enorme potencial para reducir la pobreza, aumentar la seguridad alimentaria y nutricional y crear empleo decente en las zonas rurales, los dirigentes africanos expusieron una visión audaz en la que se hacía de la agricultura uno de los pilares de la transformación estructural del continente. El Programa General para el Desarrollo de la Agricultura en África ha sido un catalizador para encontrar soluciones locales y regionales para los problemas agrícolas. También ha logrado cambiar el entorno normativo y hacer que se preste más atención a la agricultura, y, por consiguiente, ha tenido efectos en el crecimiento global de la productividad en el sector. Asimismo, el Programa reconoce el papel que desempeña el Estado en crear instituciones y proporcionar orientación normativa y los recursos necesarios para acelerar el crecimiento del sector agrícola.

Los dirigentes africanos renovaron su compromiso con los principios y valores del Programa General para el Desarrollo de la Agricultura en África en 2014, cuando aprobaron la Declaración de Malabo sobre la Aceleración del Crecimiento y la Trasformación de la Agricultura en pro de la Prosperidad Común y la Mejora de los Medios de Vida. También aseguraron que la agricultura siguiera ocupando un lugar destacado en la agenda política cuando proclamaron el año 2014 Año de la Agricultura y la Seguridad Alimentaria en África, reafirmaron el firme compromiso de África de utilizar el crecimiento de la productividad agrícola para estimular el crecimiento económico, fomentar la seguridad alimentaria y de los ingresos de los hogares rurales, y disminuir la pobreza extrema y el hambre. La

visión continental para los próximos 50 años descrita en la Agenda 2063 pone de relieve la inversión en el sector agrícola.

La productividad agrícola y el rendimiento de los cultivos siguen muy por debajo de los promedios mundiales debido a las inversiones insuficientes en el sector laboral, en tierras, en infraestructura y en instituciones relacionadas con la agricultura. En toda África, el crecimiento del sector agrícola sigue por debajo de la meta del 6% anual. El sector creció a un ritmo anual del 3,8% entre el período 1995-2003 y el período 2003-2008, y luego disminuyó al 2,6% en el período 2008- 2014. Según la Nueva Alianza, hasta la fecha, diez países han superado la meta de crecimiento agrícola del 6% (Angola, el Congo, Eritrea, Etiopía, Burkina Faso, Gambia, Guinea-Bissau, Nigeria, la República Unida de Tanzanía y el Senegal) y otros cuatro países han registrado un crecimiento que se situó entre el 5% y el 6%.

Los países que han experimentado un rápido crecimiento agrícola han demostrado tener una mayor voluntad política al aumentar la inversión nacional en el sector y al elaborar planes agrícolas más eficaces. Algunos países se han beneficiado de la asistencia oficial para el desarrollo dirigida a la agricultura y al desarrollo rural. La proporción del gasto público agrícola (que es inferior al 4%) en el gasto público total en África en su conjunto se ha situado por debajo de la meta del 10% establecida por el Programa y convenida en la Declaración de Maputo. Desde 2003, solo Burkina Faso, Burundi, el Congo, Etiopía, Ghana, Guinea, Madagascar, Malawi, Malí, Luxemburgo, el Níger, el Senegal, Zambia y Zimbabwe han superado en cualquier año la meta del 10% establecida por el Programa.

Para lograr el desarrollo agricola, los dirigentes africanos decidieron dar prioridad al aumento de la financiación nacional reforzado con inversiones en la investigación, las ciencias y la tecnología. al dar prioridad a la investigación y al desarrollo en la agricultura, se amplía la base de conocimientos científicos del continente en lo relativo a la fertilidad de los suelos, las variedades mejoradas de cultivos, la lucha contra plagas y enfermedades, y los sistemas de producción que pueden adaptarse a las condiciones locales. Sin embargo, aparte de un liderazgo político comprometido, la clave para mejorar el rendimiento agrícola de África depende del tipo de políticas de desarrollo macroeconómico, social y agrícola que los países decidan aplicar. Se debe dar prioridad las políticas que respaldan el suministro de insumos agrícolas, incluidos los subsidios agrícolas para los agricultores, deberían vincularse con el desarrollo de la infraestructura, la educación, el emprendimiento, la investigación y e l desarrollo, y el comercio. Es fundamental suministrar semillas mejoradas y fertilizantes a los agricultores que tienen pocos recursos, así como cerrar la brecha persistente entre los géneros en materia de productividad agrícola.

Por ultimo, La modernización de la agricultura de África tendrá efectos importantes en la transformación del continente. El crecimiento generado por la agricultura en África Subsahariana es hasta 11 veces más eficaz para reducir la pobreza que el crecimiento del PIB en otros sectores. Las perspectivas para reforzar la contribución de la agricultura al crecimiento siguen siendo favorables, dado que el continente registra las tasas más rápidas de crecimiento de la población y urbanización en el mundo, además de los crecientes niveles de los ingresos. Esas megatendencias impulsan el consumo total, en particular la demanda de alimentos y otros productos agrícolas. Sin embargo, la transformación del sector agrícola de África debería ser un precursor del desarrollo industrial, como fue el caso en Europa y América del Norte, Asia y América Latina. El aumento de las inversiones de capital, la diversificación significativa de los cultivos y la mejora de los vínculos con los mercados tendrían que ir acompañados de una mayor adición de valor a los productos agrícolas.

Biografia: Informe Dimensiones sociales de la Nueva Alianza para el Desarrollo de África (ONU)

94. Amakali Lahja Ndeshipanda, Namibia

Malnutrition

In some countries like in case of Namibia, there are no Public health nutritionist at the regions or among the communities to advice communities about attempting to cook in balanced diet. I ti s not always that there is nothing to eat or not enough to aim a balanced diet but lack of knowledge and skills on how prepare a balanced diet will results in malnutrition.

Namibia as a country has no specific budget to cater malnutrition, we depend on donors for this combating malnutrition, although the country has set up strategies to scale up nutrition. One cannot fulfill what planned to fulfill without a budget on your own.

The traditional way of cooking, one big meal with only one type of diet for instance if it is porridge, it is just porridge which is carbohydrates for energy provision, sometimes throughout the year.

95. Laila Hussein, National Research Center, Egypt

There sould be more emphasis on the fisheries from African coasts by the local citizens and more efforts for the safe processing for producing fish products with stable shelf life.

96. Terri Ballard, FAO consultant, Italy

I agree with the writer from the research unit "Food and nutrition research in the global South" (Nutripass) on Jan. 29 that in reviewing the available evidence, the Team should consider the type and relevance of dietary assessment metrics used, their validation, comparability and standardization, and the unit of analysis to which they were applied. Many different types of dietary assessment metrics have been developed and used in research, yet there is a paucity of standardized and valid indicators that can be used at national and global level to understand dietary consumption and patterns.

Although Goal 2 of the SDGs is to "end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round", it appears that there are no proposed indicators to measure characteristics of the diet. Likewise, there is only one (process) indicator in the WHA Nutrition Targets framework that addresses diet –proportion of children aged 6-23 months who receive a minimum acceptable diet.

An important focus of the HLPE Report will be on food consumption and diets of the entire population – including but not limited to traditionally identified vulnerable population groups. For this reason, the Report will provide an important opportunity to promote the development and application of standardized metrics for global monitoring and evaluation of food system interventions that assess nutritional adequacy of the food supply as well as the quality of diets of households and individuals. As pointed out by the Nutripass commenter, focus on individual intake is of utmost importance, as it is at this level that health and nutrition outcomes due to improved food systems will be observed.

There is currently great interest in developing proxy measures of diet quality that assess not only micronutrient adequacy but also consumption of foods associated with excess weight and diet-related chronic diseases. Developing these types of indicators for national and global monitoring will be a challenge given the incredible diversity of food systems, range of processed foods at low cost and the ability of farmers to produce, transport and store perishable foods. However, recognition by the

Report of the need for valid and comparable indicators of individual dietary quality will be very important.

97. Purushottam P. MAINALI, Nepal

The HLPE report would address the following issues from global to regional and local levels:

How and why do diets change?

Diet change is due to:

1. Increasing income level of the people in developing countries.
2. Increasing dependency on off farm job for their income including out migration.
3. Increasing use of readymade food teams.
4. Increased awareness of the people about healthy/nutritious diet.

What are the links between diets, consumption and consumer habits and food systems?

Which are:

1. Increasing consumption of diet of animal origin.
2. Awareness, increasing production of types/varieties of food commodities and their availability in the market.

How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

1. Changes of food system have contributed for increasing consumption of protein rich diet of animal origin and the minerals and Vitamin rich fruits and vegetable, have contributed to health and nutritional outcomes

What are the determinants of the changes in consumption?

1. Level of income.
2. Awareness level of the population.
3. Availability and connectivity situation in that locality.

How do the dynamics of food systems drive consumption patterns?

1. Migrating population and their food system has contributed driving consumption pattern in particular location/settlement/countries.e.g Increasing Asian population in Europe and USA has promoted increasing consumption of Asian type food also by native population.

How to shape and to address pathways to healthy nutrition?

1. Awareness of healthy diet, increase availability, and discouraging use of harmful insecticides, pesticides, and hormone in food commodities production practice and also during their storage.

What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

2. Food quality regulation right from production process up to the ultimate use.

How to build on the diversity of the existing food systems?

1. Support for increasing production and enhance availability of Livestock products, fruits and vegetables.

What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

1. Enhance production of fruits, vegetable and livestock products in developing countries.
2. Awareness campaign for the production and consumption of nutritional rich food commodities.
3. Quality regulation in each stage of their value chain.

What action should different stakeholders, including governments, civil society and the private sector, take?

1. Government should increase awareness and regulate the quality.
2. Civil society should act as watchdog for both Government and Private sector actions.
3. Private sector should ensure quality production of the nutrition rich food commodities.

98. Ali Dolloso, Occupy UN 4 Animals, United Kingdom

Huge regions of China, and some regions in Korea, Vietnam

Dogs and cats are prepared using ANCIENT methods 2,000 year old cooking methods

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

Please look on the link to see pictures of dogs being cooked alive

This is business as usual

This is for ancient tonics and elixirs

Should this kind of meat still be consumed?

Please help or it will never change

Can you imagine this is UN Sec Gen own country!

99. James Lomax, UNEP

If we examine the role of the public sector then also the private sector as the main driver in our food system should be looked at.

I also see that production is not specifically mentioned hoever assuming that the definition attached is used then this is covered.

The issue here really is how do we build consensus at the sustem level and at different scales on the following:

1. Present outomes of the food system on nutrition both under and over, livelihoods and environment.

2. The root causes of these outcomes for example: food and agriculture subsidies, weak and unconnected food, agriculture, environment and health policy, private sector activities etc.

3. Dialogue on and activities to deal with these root causes which will be sensitive to many food system stakeholders.

Thanks,

James

Compendium —final report Zero Hunger Challenge working groups

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/HLTF%20WG3-Edited%20-131115.pdf

100. Cynthia Donovan, Michigan State University, United States of America

Current work in Guatemala is beginning to demonstrate the power of cross training of nutrition and agricultural extension agents, such that both disciplines understand the approaches and concepts of the other. In addition, at the household level, addressing extension and messaging to all members of the household can be important in gaining support for changes in consumption, production and market activities. In this case, encouraging families to produce and consume more beans is a key message. The MASFRIJOL project of the Feed the Future Legume Innovation Lab is conducting this outreach and training with local Ministry staff from agriculture and health. While it is too early for final results, MASFRIJOL is receiving very favorable reviews.

MasFrijol: Bringing Hope to Families in the Western Highlands of Guatemala with Agriculture and Nutrition Education

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/MasFrijol%20story-Nutrition%20for%20distribution%20Malawi%20April%202015.pdf

101. María José Frutos Fernández, Spain

One important issue is how can the following two important targets related to Nutrition and Food Systems be reached, namely to increase the benefits of a more nutritive food, and reduce the food safety risks. Maximizing the primary production is important for fighting malnutrition, but it is also crucial to improve not only the production methods but also the food processing and food preservation through sustainable technologies. The improvement of the shelf life of processed foods, would ensure their commercialization and distribution, allowing the food to reach underdeveloped areas where the resources are scarce. This approach needs also the support of policies focused on the improvement of traditional processing, leading to more nutritious and safe food for more people, and the direct involvement of international world level organizations to attain this goal.

102. Simone Gie, Slow Food International, Italy

Thank you for the invitation to participate in the discussion. Slow Food would like to see the following issues addressed in the report:

- The well-documented negative health consequences of the transition away from nutritious traditional diets to a western diet, and the reciprocal effects on food systems. In the Slow Food network there are hundreds of producers of traditional foods who no longer have a market for their products due to consumer preference for western industrial foods.
- The relationship between biodiversity in food systems and nutritional status.
- The relationship between production methods (both for animal and plant foods) and nutrient profiles. For example, in a study done to evaluate the nutrient content of Slow Food Presidia products (artisanal/traditional foods), Presidia products were found to have higher nutrient contents compared to reference values (see http://bit.ly/1Piv2wl).
- The health impacts of food systems with high chemical inputs versus agroecological systems.
- Initiatives that aim to reduce the distance between farm and fork. For example, our 10,000 Gardens in Africa project (http://bit.ly/1PLJlLl) is creating food gardens in schools, communities and family homes across the continent. The gardens are run, and produce is consumed, by the communities themselves. Likewise, the Slow Food Earth Markets network (http://bit.ly/1QTfBvb) and CSA-type projects give consumers direct access to locally produced food. Actions such as these have the potential to increase dietary diversity through the cultivation of varied traditional crops, and nutrition security by reducing reliance on vulnerable large-scale productions.
- The role of governments in favoring the continued production of foods that form part of traditional diets. Subsidies and policies should support diverse small-scale local productions whose presence allows communities to obtain nutrients from a wide range of sources.

103. Manuel Moya. International Pediatric Association, Spain

From the point of view of malnutrition occurrence in low- and middle-income counties (LMIC), there is a coexistence of underweight and overweight that greatly affects children and adolescents. In general, if underweight population is decreasing the overweight is increasing at a higher rate. One of

the best possibilities for prevention of adult obesity and its comorbidities is starting this at early ages, because once the obesity is established the possibilities of reversing it are poor. Therefore the appropriateness of the NUTRITION AND FOOD SYSTEM is clear. Prior to comment on the given ten issues it is necessary to say that the actions in cities are different than those of much more complicated rural areas.

1 How and why do diets… In early ages bogus science is promoting formulas decreasing breastfeeding. In later ages promotion of sugar sweetened beverages, palatable dense caloric foods, pre-prepared food is cornering local plant food.

2. What are the links …Once the palatable and easy to eat food is incorporated in the (obesogenic) diet, it is difficult to remove.

3. How do changes in food systems affect … Overweight, obesity and possibly hypertension.

4. What are the determinants of the changes… TV announcements (demonstrated in HIC), and in LMIC possibly broadcasted adverts and gifts in the packs of food.

6. How to shape… Education of children at schools or by rural groups, and perhaps with short radio broadcasted messages.

In summary the actions to be taken in this respect would be:

Facilitate the flow of foods from the orchards to shops

'New shops' besides the Occidentalized (taxed?) food should have the basic local food in a relevant position

Milk and dairy products are acceptable items but as long as they do not displace fruit comsumption.

104. Justin Eyaan Ndoutoume, Cameroon

Bonsoir à tous

J'espère que ce message avant minuit. Nous avons des coupures de connexion. Mon étude vise à orienter les décideurs vers les réelles possibilités des pays de L'Afrique Centrale de devenir des bases de l'amélioration de la sécurité alimentaire tout en participant à la gestion durable des écosystèmes forestièrs.

Les idées majeures illustrées par le projet que je vous ai fait parvenir par Serge, adhérent de notre Association ADESA, à savoir:

- Créer des exploitations multiactivités dans les de savanes humides et fertiles (Congo, RDC, Cameroun..)

- Transformer certaines données négatives en atouts

- L'Afrique détient le plus grand gisement de déchets urbains, source inépuisable d'énergie renouvelable (Biomasse)

Facteurs de succès:

- Acceptation des habitants de la Forêt de travailler hors de leur territoire

- Aides promises (COP21)

- Infrastructures nationales et continentals

- Commerce équitable intracontinentales..

Nutrition

Il est difficile de supprimer les coutumes nutritionnelles (facteur organoléptique notamment)

Quelques propositions:

- Utilisation le Wild Game farming et ranching pour la consommation de la viande de Brousse

- Assurer une conservation des denrées

- Partenariat avec des grands Chefs des pays comme la France

- Organisation de rencontres dégustatives à travers le Continent

Le système basé sur le traitement des déchets que notre équipe à conçu pour la banlieue de Yaoundé répond à la plupart des critères édictés par la FAO.

Apport de l'emploi localement et à distance.

L'extension du Chemin de fer vers le port de Kribi permettra le transport des denrées de la zone de savane vers la zone des forêts à préserver.

Il en est de même de la route goudronnée Cameroun-Tchad.

Dieu voulant je préciserai ces propositions par les films en cours d'écriture.

Ce type de système est réalisable partout.

Vous troverez ci-joint le document **"Integrated Clean Development By Waste Treatment".**

Soyez bénis pour votre engagement à l'amélioration de la Qualité de Vie de l'Humanité.

Lien au document: http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/STRUCTURE%20PROJET%20ADESA%20-FAO.pdf

105. Harriet V. Kuhnlei, United States of America

I believe that an important task of the consultation is to come to grips with a clear definition on what we are talking about when we refer to “a food system.” Recently the FAO provided this far-reaching definition which is a good benchmark:

“A food system includes all processes and infrastructure involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items. It also includes the inputs needed and outputs generated at each of these steps. A food system operates within and is influenced by social, political, economic and environmental contexts. It also requires human resources that provide labor, research and education.”

There are many investigations in the literature on each of these aspects as applied to food, diets, health and food and nutrition security. The HLPE has a lot of work cut out for them to address the state of the art for each of these components within any one food system, whether it is in a developed or

developing country, not to mention creating an overarching framework on the various types of food systems.

Thank you for making the consultation available.

Sincerely,

Harriet V. Kuhnlein, PhD, LLD (hon.), FIUNS, FASN
Professor Emerita of Human Nutrition, McGill University, Montreal
Adjunct Professor, Department of Public Health Sciences, University of Hawai'i, Manoa
Founding Director, Centre for Indigenous Peoples' Nutrition and Environment (CINE)
http://www.mcgill.ca/cine/about
http://www.mcgill.ca/nutrition/staff/professors/kuhnleinwww.indigenousnutrition.org

106. Lesley Mitchell, World Animal Protection, United Kingdom

World Animal Protection submission to HLPE report on Nutrition and Food Systems

E-consultation on an Issues Note. January 2016

World Animal Protection strongly welcomes the attention of the CFS HLPE to the issue of food systems and nutrition. In general, the questions to be addressed are comprehensive and we would recommend that **the focus of the report addresses both issues of undernutrition and over-nutrition (excess consumption), as well as malnutrition, within its remit.** We live in a world where diets are rapidly changing, particularly in developing regions, and suffer simultaneous challenges of over- and under-nutrition within populations. This dynamic environment offers significant scope for reshaping food systems to deliver healthy diets for all. As incomes, production bases and food cultures change, the potential for countries to leap from under-nutrition to excess consumption is growing, so clear policy signals are needed urgently.

The extent and role of animal source foods within diets is a priority for scrutiny as livestock are a major part of important food systems, some of which deliver important micronutrients and protein to impoverished diets, others being associated with major health issues of over-consumption and other sustainability impacts. This work should link to the current HLPE report recommendations on sustainable agriculture with reference to livestock. The report should also focus on mechanisms to counter over-nutrition through healthy, sustainable diets, including the balance between animal and plant source foods in sustainably securing nutrition security.

World Animal Protection particularly welcomes the holistic approach of the report to all aspects of the food system, starting from farm level. **Animal health and welfare has a major role to play in maximising the achievement of productive and sustainable food systems, especially for small farmers, and its role in delivering these should be explicitly addressed.** Definitions of sustainable livestock production systems now routinely include animal welfare as a core, integrated component. Indeed, this is reflected by the Guidelines for Responsible Agricultural Investment adopted by the Committee on World Food Security. Sustainable agriculture is at the heart of the United Nations

Sustainable Development Goal 2 addressing hunger. **The report should emphasise the need to underpin any relevant food system with sustainable livestock agriculture which considers economic, social, environmental and animal welfare components of the food production system.**

While the report addresses all aspects of the food system from production level, through processing, marketing and food accessibility, **a key focus should be the ability of small scale farmers to deliver local nutrition security and better diets, as their potential to increase efficiency may provide the most effective route to increasing food and nutrition through increased productivity, food safety and quality, and market accessibility. In so doing, it should highlight effective mechanisms for strengthening small scale production so that it survives and prospers, including the transformation of markets to empower small farmers to both invest and benefit from their role in increasing nutrition availability at the local level.** This approach is preferable to further maximisation of the most intensive forms of animal agriculture where gains from increasing productivity tail off beyond an optimal level and which can bring sustainability challenges in the form of environmental impact, natural resource use and worse animal welfare.

The role of the food industry in shaping market signals at all points in the food system should also be explored, particularly where the food system (production, processing and retail sectors) is dominated by major national and multinational interests with significant influence on dietary behaviour. **Furthermore, the role of consumer concerns in shaping diets should be included. Consumer attention to farm animal welfare concerns is one mechanism to engage people with dietary choices**: clear examples include the increased priority placed on farm animal welfare as seen from consumer signals in Europe via the recent 2015 Eurobarometer survey and corporate responses to similar consumer concerns in North America, which have driven concrete action on sustainable food system development.

The report should address **the need for policy approaches to achieving healthy diets to cohere with policy signals from other processes that effect the food system. These include those focused on economic development and protection of livelihoods, trade, strengthening human and social rights, environmental protection, climate change mitigation and adaption, biodiversity conservation and natural resource use.** This reflects the policy-making environment fostered by agreement and future implementation of the Sustainable Development Goals.

107. KBN Rayana, IAMMA, United States of America

A . climate smart food

1. Climate smart food : it is glade to recomand due to developing countries had a larger population occurs nutrition problems because of available and food cost and taste.

2. This is to be addressed based on its requirement specifically poor and agric. Labor. The labor which need a secial care since after hard work they face to eat their like than a different tastem which address their needs.
3. The food should be locally combined and addressed eve n conventional food available across their farms

B. Nutritional available on regional food:

1 this address to the regional avaialable including green leaves remains with rich iron and nurtion m since this enhance the strength of human being.

2 more address in the sense of vegetable and non veb. Food as available and \

4. Cost effective.

C, cost effective and healthy food:

This is most important in the developing country since the labor after working long hours cannot search for food. In the case of farm labor can be provided from the farms such to be educated and easily available at low cost by identify the food

Further it address as easy available.

D. A food suited to the local body…

This is most important in the c;imatic regions which differs and also availability. Hence the food to be identified for the different sectors needed which they can choose the taste and suited to the body. Some bodies may bit digest easily the food which have high protiens. This to be determined with different ways and address. Once the customer habited can choose as per the climatic systems and it become climate smart. And free from unhealthy

Finally cooked and non cooked.

Cooked foods or some places available , which they are usually do it on cost basis. Inspite of it they must address it only the suitable for the local level and easy digested and addressed local foods. The same may applicable for non cooked too.

By

KBN Rayana,

IAMMA from India and USA.

108. Hélène Delisle, Canada

Here are my responses to the questions posed. I do not pretend to bring any new information, but it is sometimes valuable to go back to the bascis.

1. How and why do diets change?

Diets change when there are changes in the determinants of food choice:

- Food supply – types of food, variety, extent of processing
- Economic condition
- Food prices
- Health condition
- Preferences, under the influence of advertising primarily
- Environmental, ethical and other types of social concerns
- Information on health and on food
- Social norms
- Lifestyle, including urban living, lack of facilities and limited time for cooking
- Migration
- ….

2. What are the links between diets, consumption and consumer habits and food systems?

Eating patterns are influenced by, and impact on, food systems. And therefore, consumers have an important role to play in shaping food systems. They would have to be more vocal.

3. How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

Food systems impact on the food supply – food variety, quality, safety, nutritional value, extent of processing, prices…., and the food supply is one of the drivers of food choice. See also above, question 1.

4. What are the determinants of the changes in consumption?

The relative forces of the various determinants of food choices and changes will determine the nature and extent of the changes. Again, refer to Question 1.

5. How do the dynamics of food systems drive consumption patterns?

This question is somewhat redundant with the previous ones.

6. How to shape and to address pathways to healthy nutrition?

Eating for health cannot be dissociated from eating for enjoyment (influence of advertising), eating as a social and even political deed (culture, beliefs, social concerns), eating according to what is available and affordable (food systems), and eating according to one's needs and lifestyle (psycho-social factors). All these facets have to be addressed, and common sense for variety and moderation may be a better guide than science, which evolves. Consumption of eggs, for instance, used to be encouraged only in small quantities, which is no longer the case.

7. What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

This describes in essence food and nutrition security, which operationalises the right to food. States have to promote and defend this right through regulations and guidelines regarding food systems including advertising, nutrition communication and social safety nets.

Food sovereignty has to be regarded as a national goal.

8. How to build on the diversity of the existing food systems?

Various food systems coexist and this is healthy (much like biological diversity). Sustainable combinations should be sought and for this, the criteria are health of the people, of the environment and of the local economy. The optimal mix is location-specific and requires national sovereignty over food and food systems for its determination.

9. What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

There are opportunities for nutritional value improvements all along the food value chains. Nutrition-sensitive production, transformation, marketing and distribution is central. Some examples are given to illustrate this:

- Production: Vegetable consumption is oftentimes insufficient for health: to promote local gardens, or subsidise large producers. In Benin (West-Africa), surveillance for cardiovascular and metabolic disease risk was coupled with producers' markets. In Burkina Faso, the production, distribution and consumption of non-refined palm oil was promoted as a strategy to fight against vitamin A deficiency, while providing additional income for women and as a means of stabilising soil

along rivers (however, external funding needed to implement this was not sustained, so that vitamin A capsules continue to be distributed).

- Transformation: In Mali, parboiling of locally grown rice was advocated as a means of preventing thiamine deficiencies in producing areas where diet is not diversified (but we do not know whether this process is now routinely implemented).

- Marketing: social marketing should be strengthened in order to posit healthy weights, physical activity and consumption of local foods as desirable and even social norms.

- Food preparation: Cooking with less fat, teaching one's children how to prepare traditional foods, and reducing cooking time, for instance for vegetables are among the messages conveyed in the Food Guide that was developed in Benin.

10. What action should different stakeholders, including governments, civil society and the private sector, take?

- Large transnational corporations now rule the agro-food system worldwide. If states are to counteract such forces, they need to join in regional alliances to impose their food and health policies, for instance the ban on the introduction of GMOs in agriculture in sub-Saharan Africa.

- In the private sector, we tend to lump together small producers, large companies and international corporations. Small producers, women in particular, need to be supported and oriented toward producing diversified nutritious foods that the population needs for nutritional health. More farmers' markets should be encouraged, and particularly in poor neighborhoods of cities. Large corporations are governed by profit and therefore, any value added may be meaningful to them. They are not the ones to recommend eating less food, less processed foods, less sugar, less salt, less saturated fat… The best that can be expected is for food processors to reduce the amount of salt, sugar and fat in their processed foods.

- Governments may impose tax on ultra-processed foods, but results up to now have been mitigated. The process and likely impact have to be carefully analysed beforehand for increasing the likelihood of positive impact on diets.

- Health and nutrition professional associations have an important role to play with governments (giving advice) and the population (nutrition and health communication for behaviour change; pressure on companies for more wholesome, nutritious and cheaper food [meaning less profit for them]).

- More nutritionists as health professionals are needed to help governments with their agro-food and health policy as regards nutrition, to act in the health as well as food system, to communicate with the population, to train other agents, and to plan and assess programmes.

109. Shenggen Fan, IFPRI, United States of America

HLPE eConsultation on Issues Note
Comment by Shenggen Fan
February, 2016

Multiple burdens of malnutrition persist globally. In addition to feeding the world healthily and sustainably, the global food system is increasingly called upon to play a more active role in economic and social development throughout the developing world. Hence, a new global food system is needed to deliver multiple-win outcomes. The HLPE report on Nutrition and Food Systems should include the following considerations in order to advance a food system revolution:

- We need a new food system that is inclusive, nutritious and healthy, climate-smart, sustainable, business-friendly, and productive. A food system that covers these dimensions can allow for the attainment of multiple SDGs (see IFPRI et al. 2015)
- A value chain approach must be considered in order to ensure increased availability, affordability, acceptability, and quality of nutritious foods (see Fan and Pandya-Lorch 2012)
- The food system and nutritional outcomes are linked beyond agriculture. More attention should be given to the post-harvest segments of the food chain (e.g. processing, transportation) to preserve nutrition content and reduce food loss (see Reardon et al. 2012)
- A data revolution needs to be mobilized to improve data collection, quality, reliability, and timeliness, and to monitor and track progress (see Barrett and Headey 2014)
- Closing the gender gap is critical. Women have an important role in mediating agricultural pathways to nutritional outcomes (see Meinzen-Dick and Quisumbing 2013)
- Innovations in policies, technologies, and institutions are needed to for a multistakeholder approach to addressing global hunger and malnutrition (see Fan, Menon, and Brzeska 2013)
- Countries that have made great progress in transforming their food systems through context-specific strategies (e.g. Brazil, Vietnam, Rwanda) should be highlighted, as these provide lessons learned and can pave the way forward for other countries to make similar, or greater, progress in achieving food security and nutrition (see “Country case studies” in Compact2025 weblink)

Suggested resources:

Barrett, Christopher B. and Headey, Derek D. 2014. A proposal for measuring resilience in a risky world. In Resilience for food and nutrition security. Eds. Fan, Shenggen; Pandya-Lorch, Rajul and Yosef, Sivan. Chapter 20. Pp. 187-194. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128457

Compact2025. 2016. http://www.compact2025.org/resources/

Fan, Shenggen; Menon, Purnima; and Brzeska, Joanna. 2013. What policy changes will reverse persistent malnutrition in Asia? European Journal of Development Research 25(1): 28-35. http://dx.doi.org/10.1057/ejdr.2012.47

Fan, Shenggen, and Pandya-Lorch, Rajul. Eds. 2012. Reshaping Agriculture for Nutrition and Health. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://www.ifpri.org/publication/reshaping-agriculture-nutrition-and-health

IFPRI et al. 2015. Global Food System Index Concept Note. http://www.compact2025.org/files/2015/12/WEF_NVA_GAC15_Global_Food_Systems_Index_Concept.pdf

Meinzen-Dick, Ruth, and Agnes Quisumbing. 2013. "Closing the Gender Gap." In 2012 Global Food Policy Report. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://www.ifpri.org/sites/default/files/publications/gfpr2012_ch04.pdf.

Reardon et al. 2012. The quiet revolution in staple food value chains. Washington, D.C.: Asian Development Bank (ADB) and International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127312

110. Mihaela Begea, University Politehnica of Bucharest - Romania, Romania

The initiative of this report is very timely and I would like to thank the HPLE steering committee for providing the opportunity for comment.

Overall speaking all the topics / issues proposed to be tackled within the report are global issues.

On the other hand, I consider as appropriate the proposed approach (meaning issues) of the report.

The differences between diets, food habits, food chains and health problems are considerable and depend on various cultural, geographical, national, economic or social aspects.

Since the issues proposed by the report are extremely generous in terms of amplitude my opinion is to try an approach as focus as possible and possible to outline several case studies or examples of good practices.

Of course the sustainability is a key aspect that has to be taken into consideration, and the issues of food security and sovereignty should also be tackled.

111. Carola Strassner, FH Münster - University of Applied Sciences, Germany

Thank you to the HLPE for their invitation to add to the discussion on the Issues' Note on Nutrition and Food Systems.

We are very happy to see the mutiplicity of food systems acknowledged, and, a push to gathering evidence for review on the broad - and ambitious - scope of the intended report.

My feedback/comments to the most critical issues of the undertaking as presented (IMO):

- [sources of evidence: academic and experiential] Including experiential sources of evidence is sure to be a very useful and knowledge-enriching approach, opening the knowledge base out beyond even the multi-disciplinary perspectives to trans-disciplinary (here meaning the inclusion of practice/practitioners). The challenge I see is to find a suitable procedure and scope. For "food and diets" every single one of us 7 billion humans is an expert insofar as almost all of us eat and drink more than once every single day, and, after a few years can be said to be following a diet (i.e. pattern of food and drink consumed over time).

- ['nutrition and food systems'] Before doing anything else those involved need to find and agree on an unambiguous description or definition of a 'food system'. The way I look at it, 'nutrition' is an integral part of a 'food system'. In the Issues' Notes the terms seem to be used differently. Also, it needs to be unambiguously clear, whether, given the use of the term 'food system', an analytical or a systems approach is going to be followed - or both. The way the subject matter under review is framed will definitely and definitively affect what will be seen and found and hence what recommendations for action etc. can be made. I highly recommend following a systems approach, or, both an analytical and a systems approach. If a purely analytical approach is taken, with underlying linear assumptions and the focus on 'drivers' and 'determinants', feedback loops (rebound effects) and the analysis of changes in relationships between elements of a food system and potential strong leverage points may go unnoticed.

- [methodological approach: review of evidence-base] The intended report will be extremely valuableas a summary statement of the status quo of our knowledge of the issues to be addressed. In this sense it is, however, strongly restrospective and will not easily include immediate findings nor necessarily be able to elicit the very best suggestions for action. Thus there will be gaps. The report and the team will need to name and address the gaps as issues for future work/reports.

Comment on "assess[ing] the influence of various types of food systems on diets, nutrition and health":

One food system of value wrt a mounting evidence-base we are currently working on is the organic food system. This offers a history, clear definitions and system boundaries, application of global principles in local contexts around the world, data on sustainability of both production and - recently - consumption and diet, as well as policy, regulation, education and technology issues. We see there is much insight to be gained from studying the organic food system. See our work here: http://organicfoodsystem.net

112. Benoit Demers, Canada

Tout d'abord, je vous remercie de nous proposer ce forum pour partager nos recherches, études et réflexions. Ici-bas, le sommaire de mon document en pièce jointe. Cet essai se consacre sur les problématiques environnementales relativement à l'alimentation et laisse une large place au régime alimentaire ainsi qu'au politique alimentaire. Espérant le tout conforme.

SOMMAIRE

Mots clés : système alimentaire, système alimentaire durable, impacts environnementaux, politique alimentaire, régime alimentaire, agriculture urbaine, circuit court, gaz à effet de serre

Il est possible d'anticiper l'évolution du système alimentaire. D'un stade d'autosubsistance, l'évolution du système alimentaire dirige les pays à haut revenu vers un système où l'agriculteur n'a qu'un rôle secondaire. Cette croissance s'accompagne d'un enchaînement de ruptures alimentaires qui dénature l'aliment et déconnecte le mangeur de son univers bioculturel. Les tendances démontrent que les agglomérations veulent se réapproprier le développement du système alimentaire : la politique alimentaire devient un outil permettant de développer, entre autres, de nouvelles pratiques environnementales. Ces initiatives sont analysées puisque la relation entre l'alimentation et l'environnement est devenue un domaine de recherche. Ces recherches s'accompagnent d'une nouvelle terminologie. Toutefois, il appert qu'il n'existe pas de consensus sur l'utilisation d'un vocable commun, même si certains termes comme « système alimentaire durable » semblent en voie d'être reconnus.

L'analyse des problématiques environnementales démontre que le système alimentaire est responsable d'environ 25 % des émissions de gaz à effet de serre. Différentes solutions ont été avancées pour réduire les externalités négatives du système alimentaire, comme : replacer l'agriculture au cœur de la ville; s'attaquer aux problèmes de pertes et gaspillages alimentaires; revoir nos comportements afin de réduire la dépendance aux énergies fossiles; comprendre l'importance du régime alimentaire; et favoriser le développement des circuits courts de commercialisation. Ces solutions deviennent des pratiques que l'agglomération peut canaliser par une politique alimentaire.

Les conclusions de l'essai montrent que l'adoption des politiques alimentaires devient une réponse coordonnée à ces problématiques. La politique alimentaire structure les objectifs, les désirs et, ultimement, la relation entre l'alimentation et la société. Toutefois, des questionnements existent encore, comme : qui est le mieux placé pour diriger et que doit contenir une politique alimentaire? Les recommandations insistent d'abord sur l'adoption d'une politique alimentaire en concordance avec les ressources dédiées tout en favorisant son appropriation par la population. Ensuite, sur l'utilisation des outils d'aménagement, comme le plan d'urbanisme, afin de créer un « paysage alimentaire ». Enfin, sur la promotion d'un régime alimentaire qui vise la diminution de la consommation de protéines animales au profit de protéines végétales, tout en réduisant la surconsommation.

L'IDENTIFICATION DES MEILLEURES PRATIQUES ENVIRONNEMENTALES DES POLITIQUES ALIMENTAIRES POUR UNE AGGLOMÉRATION URBAINE

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/2016-02%20-%20D%C3%A9p%C3%B4t%20final%20-%20Benoit%20Demers%20-%20Essai%20SAD.pdf

113. Yoji Matsui, Ministry of Agriculture, Forestry and Fisheries, Japan

Ministry of Agriculture, Forestry and Fisheries of Japan would like to provide the following recommendations to the coming draft of the HLPE report on Nutrition and Food Systems.

1. Food Losses and Waste

Food losses and waste are one of the critical issues for nutrition. According to the *State of Food and Agriculture 2013* (FAO 2013, p.44), nutrients of food could deteriorate through storage, processing and distribution, which subsequently impairs the value of the food and causes food losses and waste.

Also, vegetables and fruits as well as fishes, which are important sources of micronutrients, are more perishable than staples such as rice and wheat. In order to provide diverse nutritious food to consumers, it is important to prevent food losses and waste by appropriate treatments and infrastructure through the food value chains such as the process of storage and processing as well as transportation.

However, according to FAO (2013, p.45), there are little evidences on the impact of the measures to reduce food losses and waste on nutrition. It would be thus worthwhile for HLPE's report on Nutrition and Food System to further develop the discussions in FAO (2013) on the linkage between nutrition and reduction in food losses and waste.

2. Public-Private Partnership

Tackling malnutrition requires strong collaboration among stakeholders in the food system, being consisted of producers, processors, traders, retailers and consumers as well as the government. The private sector often has advanced knowledge and research capabilities on nutrition. It would thus be more effective for the government to involve the private sector and further build on their existing efforts than to start everything from scratch. Therefore, analyzing cases and impact of public-private partnership and international platforms (such as Scale Up Nutrition) on nutrition would be valuable in this report.

3. Conclusion

Against the background, we would like to propose to include the following points in the coming draft HLPE report.

- Impacts of the practices to reduce food losses and waste on nutrition
- Good practices to reduce food losses and waste through food systems, which contribute to tackling malnutrition
- Case studies on PPP practices to tackle malnutrition and analyses on their impacts on nutrition

114. Brian Revell, Harper Adams University, United Kingdom

These comments are a contribution to giving focus to the issues to be addressed in the HLPE e consultation.

The simple typology of 4 principal food systems [Gomez and Ricketts, Food Policy 42 (2013) 139-150] should be adequate to conceptualise food systems. Each may differ to some degree in expression in relation to their geography and food products, in the economic, social, infrastructural and political environments within which they operate and key detailed case study exemplars will be required to draw out the nuanced differences within each system. The 4 systems can readily embrace the supply

of food products and nutrition from agriculture and pastoralism , aquaculture and capture fisheries production.

These are:-

- Traditional (short chain often small-scale producer (agriculture/aquaculture or harvest fisheries to traders and consumers in wet markets
- Modern (Complex globally-oriented supply chains, technology oriented, based on commercial larger scale farming, with a higher proportion of processed and manufactured (added value) products, ability to handle both dry goods and fresh produce in chill chains, and retailed to consumers through supermarkets and food service companies).
- Modern-to-traditional (Domestic and multinational food manufacturers sell through traditional wholesaler, trader and small local stores)
- Traditional to modern (supermarkets and food manufacturers source product from small scale producers and wholesalers.

The principle questions which the study should specifically be addressing are:-

2. What is the relative importance of each of the different food systems in delivering total nutrition in different countries/regions of the world (ie what shares of consumption and nutrition do these systems account for)?
3. What is the extent to which these systems are delivering adequate and appropriate nutrition to meet the needs of consumers?
4. Are and will these systems be fit for purpose in the context of the continuing and future dynamic impacts of economic growth, urbanisation, global population growth and structural change on environmental sustainability and food security?
5. If not, what are the economic policy levers and other approaches to remove constraints(inter alia in supply chain infrastructure, social and cultural norms, income levels and distribution, value chain costs, food choice, availability, affordability and quality) to induce change and adjustment in consumption and diet?

It is axiomatic that consumers will seek to enhance the variety in their diets when they have the means and ability to do so. In particular, we need to understand more about how economic growth, urbanisation and technological innovation affect the rate of food system change and evolution, consumption and nutrition. These include issues such as :-

i. how retail concentration and super marketing affect food choice, affordability and availability

ii. the opportunity of small scale producers and rural communities to engage with modern supply chains and its impact on their incomes, diet and nutrition;

iii. the relative proportions of nutrition derived from processed and opposed to fresh foods, and their respective income elasticities of demand (many aggregate income elasticities of demand are estimated at the undifferentiated commodity-level eg beef, cereals etc)

iv. an understanding of own and cross (substitute) price elasticities of demand for different food types (and hence for their nutrient contents). This is particularly relevant where taxation of product content such as sugars/fats may be considered as approaches to reducing over consumption of products which can have adverse impacts on health (including obesity).

115. Gábor Figeczky, IFOAM - Organics International, Germany

IFOAM – Organics International is thankful for this opportunity to contribute to shaping the basic concept of this very timely report. While in our opinion the set of scoping questions is basically very comprehensive, it fails to address the issue of sustainability.

The Sustainable Development Goals (SDGs) adopted in 2015 and in particular SDG 2 create a clear link between nutrition, food security and sustainable agriculture. We understand that the focus of the report is food systems and nutrition, however, in order to avoid the silo effect, it needs to look at how we can develop food systems which provide everyone with sufficient nutritious food in a sustainable way.

As smallholders produce 70% of the world's food and are the ones who tend to produce in a more sustainable way, their role requires special attention in the report.

Taking all these into consideration, we propose to explore the following additional issues:

- how to build food systems which support healthy diets and sustainability?
- what policies are needed to achieve such food systems? (what has worked and what hasn't?)
- what is the role of education and communications in achieving these food systems?
- how to ensure a sustainable and healthy diet for people in remote areas?

116. Anne Roulin, Nestlé, Switzerland

Thank you for this opportunity to provide comments on the Issue Note on the new HLPE report on Nutrition and Food Systems.

Feeding 9 billion people by 2050 with the optimal nutrition to lead an active and healthy life requires a holistic approach to the food system across the entire value chain. There are significant pressure points in the food system that need to be addressed if we are to continue meeting our nutrition needs without depleting water tables, degrading soil and reducing land availability. The Issue Note already outlines a series of crucial questions however, in my opinion agriculture should be addressed more explicitly in the Report as it is the foundation for food and nutrition security. Despite the advances in agricultural production, progress has focused only on yield. Nutritional value has been largely ignored and staple crops do not provide sufficient micronutrients. Crop plants and their cultivation are the fundamental building blocks for a food secure world. Whether these are grown for food or feed for livestock, they are the foundation of food and nutrient security. Science will be necessary for increasing food production, and for ensuring healthful dietary patterns, in ways that are sustainable. There is still much to learn about the impact that dietary recommendations, and food choices have on agriculture and the environment.

Many of the challenges for the future of food will be faced where the crop are grown—on the farm. Farmers need to plant the right crops and create the right conditions to maximise productivity (yield) and quality (e.g. nutritional content), whilst maintaining the environment, and earning a living. Across the globe, the average age of farmers is increasing, with the continued migration to urban areas who will constitute the next generation of farmers? New advances in science and technology can provide the tools and know-how that will, together with a more entrepreneurial approach ("agripreneurs"), help farmers to meet the inexorable demand for the sustainable production of nutritious foods for future generations. It is clear that scientific and technological advances, especially those that promote sustainable practices in agriculture, will be essential to ensure a nutritious food supply for future generations.

The scale of the problem is immense and no one institution, government, company or NGO can possibly deliver alone on such an agenda. Partnerships are absolutely crucial and in my opinion the Report should specifically address how to promote the formation of cross-sector partnerships and highlight successful case studies.

Ref: http://onlinelibrary.wiley.com/doi/10.1002/jsfa.7554/pdf

Anne Roulin

VP: Nutrition, Health & Wellness & Sustainability

Nestlé

Switzerland

117. Michael Jahi, Chappell Institute for Agriculture and Trade Policy, United States of America

Thank you for the invitation to add to the discussion on the Issues' Note on Nutrition and Food Systems. I have the following comments for consideration by the HLPE in this report:

1. The large and very influential role of corporate concentration, commercial marketing and processed food development must be analyzed head on. There may in fact be unavoidable trade-offs between current systems and profits and improved nutrition (see note on Smith et al. 2013). The literature on these issues is extensive. See Hendrickson (2015); Howard (2016); Lang et al. (2009); Moss (2013); Nestle (2013); and Smith et al. (2013). The power of commercials and corporate influence (for instance, on what is served in schools) are obviously important influences on how diets change, yet is rarely addressed directly in many analyses and scenario projections.
    a. Smith et al.'s conclusions are of especial note, particularly with regards to profit and regulatory capture (albeit in a US context): "[…]We ask whether the current state of affairs represents a market failure, and—if so—what might be done about it. We argue that while today's industrial food system has its advantages, the asymmetric information problems inherent to this system have resulted in a "lemons-style" breakdown in the market for processed foods. The appropriate policy response to such situations (namely, verifiable quality standards) is well known, but such policies are likely (in the short run) to reduce profits for existing large industrial producers of food. In light of the food industry's long history of success at regulatory capture, we propose the formation of a new independent food standards agency devoted to protecting the interests of the American consumer."
2. The fact of persistent and large negative externalities—particularly health externalities, both direct and indirect—must be taken into account when evaluating current and alternative food systems. It makes no sense, for example, to refer to current systems as "efficient" in the presence of large, uninternalized externalities. (FAO 2015; Pretty et al. 2001). Further, the possibility of raising food prices to send appropriate signals about the costs of different foods and production systems, while politically unpopular, should be considered. It is, in fact, one way that "diets change," and the many projections of future demand for, for example, meat from ruminants appears to me to be economically and ecologically incoherent and untenable without envisioning the internalization of *known* costs and risks into prices. See also point 8 on possible effects of (higher) food prices.
3. The fact that, with few exceptions, plant breeding has not focused on nutrition, and there is some evidence of nutritional losses in cultivars over time, should be addressed. (e.g. Davis 2009)
4. As acknowledged in multiple sources, gender equality and women's rights should be a central feature of the analysis on nutrition, e.g. Agarwal (2015); Bezner Kerr et al. (2007); Bezner Kerr et al. (2011); Bezner Kerr et al. (2013); Jones et al. (2014); Smith et al. (2003); and Smith and Haddad (2015); see also the FAO *Key recommendations for improving nutrition through agriculture and food systems,* which includes the point for programs and

investments "Empower women" and the point for policies "Include measures that protect and empower the poor and women."

5. The constraints placed on many countries with regards to providing food and nutrition security for their own populations must be addressed, and in fact, prioritized above simple economic returns and trade considerations for corporations—which was *not* done during the formation of the FAO, as McKeon (2014) elaborates. See also Weis (2007) for a discussion of the impacts of the Agreement on Agriculture.
6. The growing literature on connections between crop diversity and dietary diversity should be amply explored; e.g. Burlingame and Dernini (2012); with the contexts of food sovereignty and autonomy considered alongside.
7. The growing realization of the importance of dietary diversity *per se* should be addressed, e.g. Smith and Haddad 2015; Heady and Ecker (2013).
8. A sophisticated analysis of nutrition, production, productivity, and *prices* must be undertaken. While there has long been an assumption that increasing productivity for farmers will increase their well-being, nutrition, and income, the possibility that higher prices is equally or more important or effective is seldom seriously addressed. But contemporary analyses and re-analyses of earlier data have solidly (though arguably not yet conclusivelyl) shown that higher food prices may in fact be better for farmers, and indeed, may drive up urban and rural wages (and therefore improve the possibilities for food and nutrition security); Headey (2014); Ivanic and Will (2014). Therefore, the typical assumption of productivity → increased farmer income → lower food prices → improved nutrition outcomes should be interrogated, questioned, and likely revised in the face of current evidence.
9. The significant contribution to dietary diversity and food security from urban agriculture should be acknowledged and carefully examined; Thebo et al. 2014; Zezza and Tasciotti 2014.
10. Cultural and ethical values, and their interaction with nutrition, food sovereignty, and autonomy (not autarky) should also be explicitly considered and their significance allowed due weight. This includes, but is not limited to, the importance of participation and empowerment, as recognized in the *Key recommendations for improving nutrition through agriculture and food systems*, which is based on a consensus process among nutritionists and related experts.

Thank you again for the opportunity to submit comments towards this important work.

M. Jahi Chappell, Ph.D.
Senior Staff Scientist
Institute for Agriculture and Trade Policy
Minneapolis, MN, USA

References Cited

Agarwal, B. (2015). Food Security, Productivity, and Gender Inequality. In R. J. Herring (Ed.),*The Oxford Handbook of Food, Politics, and Society*. Oxford: Oxford University Press.

Bezner Kerr, R., Berti, P. R., & Shumba, L. (2011). Effects of a participatory agriculture and nutrition education project on child growth in northern Malawi. *Public Health Nutrition, 14*(08), 1466-1472.

Bezner Kerr, R., Snapp, S., Chirwa, M., Shumba, L., & Msachi, R. (2007). Participatory research on legume diversification with Malawian smallholder farmers for improved human nutrition and soil fertility. *Experimental Agriculture, 43*(04), 437-453.

Bezner-Kerr, R., Lupafya, E., & Shumba, L. (2013). *Food Sovereignty, Gender and Nutrition: Perspectives from Malawi: Conference Paper #68*. Paper presented at the Food Sovereignty: A Critical Dialogue, Yale University, New Haven, CT. http://www.iss.nl/fileadmin/ASSETS/iss/Research_and_projects/Research_networks/ICAS/68_BeznerKerr_2013.pdf

Burlingame, B., & Dernini, S. (Eds.). (2012). *Sustainable Diets and Biodiversity: Directions and solutions for policy, research and action*. Rome: Food and Agriculture Organization of the United Nations.

Davis, D. R. (2009). Declining Fruit and Vegetable Nutrient Composition: What Is the Evidence? *HortScience, 44*(1), 15-19.

Food and Agriculture Organization of the United Nations (FAO). (2013). *Key recommendations for improving nutrition through agriculture and food systems*. Retrieved from Rome: http://unscn.org/files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_Key_recommendations.pdf

Food and Agriculture Organization of the United Nations (FAO). (2015). *Natural Capital Impacts in Agriculture: Supporting Better Business Decision-Making*. Retrieved from Rome: http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Final_Natural_Capital_Impacts_in_Agriculture_-_Supporting_Better_Business_Descision-Making_v5.0.pdf

Headey, D. (2014). *Food prices and poverty reduction in the long run* (1331). Retrieved from Washington, D.C.: http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128056

Headey, D., & Ecker, O. (2013). Rethinking the measurement of food security: from first principles to best practice. *Food Security, 5*(3), 327-343. doi:10.1007/s12571-013-0253-0

Hendrickson, M. K. (2015). Resilience in a concentrated and consolidated food system. *Journal of Environmental Studies and Sciences, 5*(3), 418-431. doi:10.1007/s13412-015-0292-2

Howard, P. H. (2016). *Concentration and Power in the Food System: Who Controls What We Eat?* London: Bloomsbury Academic Publishing.

Ivanic, M., & Martin, W. (2014). Short-and long-run impacts of food price changes on poverty. *World Bank Policy Research Working Paper*(7011).

Jones, A. D., Shrinivas, A., & Bezner-Kerr, R. (2014). Farm production diversity is associated with greater household dietary diversity in Malawi: Findings from nationally representative data. *Food Policy, 46*(0), 1-12. doi:http://dx.doi.org/10.1016/j.foodpol.2014.02.001

Lang, T., Barling, D., & Caraher, M. (2009). *Food policy: Integrating health, environment & society*. Oxford, UK; New York, USA: Oxford University Press.

McKeon, N. (2014). *Food Security Governance: Empowering Communities, Regulating Corporations*: Routledge.

Moss, M. (2013). *Salt, sugar, fat: how the food giants hooked us*: Random House.

Nestle, M. (2013). *Food politics: How the food industry influences nutrition and health*: University of California Press.

Pretty, J., Brett, C., Gee, D., Hine, R., Mason, C., Morison, J., . . . Dobbs, T. (2001). Policy Challenges and Priorities for Internalizing the Externalities of Modern Agriculture. *Journal of Environmental Planning and Management, 44*(2), 263-283. doi:10.1080/09640560123782

Smith, L. C., & Haddad, L. (2015). Reducing Child Undernutrition: Past Drivers and Priorities for the Post-MDG Era. *World Development, 68*(0), 180-204. doi:http://dx.doi.org/10.1016/j.worlddev.2014.11.014

Smith, L. C., Ramakrishnan, U., Ndiaye, A., Haddad, L., & Martorell, R. (2003). *The importance of women's status for child nutrition in developing countries* (131). Retrieved from Washington, D.C.: http://www.ifpri.org/publication/importance-womens-status-child-nutrition-developing-countries

Smith, T. G., Chouinard, H. H., & Wandschneider, P. R. (2011). Waiting for the invisible hand: Novel products and the role of information in the modern market for food. *Food Policy, 36*(2), 239-249.

Thebo, A. L., Drechsel, P., & Lambin, E. F. (2014). Global assessment of urban and peri-urban agriculture: irrigated and rainfed croplands. *Environmental Research Letters, 9*(11), 114002.

Weis, T. (2007). *The Global Food Economy: The Battle for the Future of Farming*. Blackpoint, NS. Canada: Fernwood Publishing.

Zezza, A., & Tasciotti, L. (2010). Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries. *Food Policy, 35*(4), 265-273.

118. Richard Black, United States of America

In reading the wide variety of comments, it seems that many have a strong interest in one or two particular approaches, and so advocate exclusively for those. I suspect that this is not the path to

success. Neither will adopting all approaches at once lead to success. Undoubtedly, it will prove essential to focus efforts in order to achieve sufficient change (in that area of focus) to impact diet. Which begs the question of how to bring that focus, how to evaluate so many different options in a balanced manner and make decisions regarding implementation.

One path, of course, is to ask which of the variety of approaches have measureable and quantifiable outcomes. It strikes me that few, if any, of the comments speak to measurement of success, speak to appropriate metrics. Any plan developed within the context of this initiative will need to be phased in over many years, in various countries, and continue for many years afterward. Constant adaptation of any plan will be critical for long term relevance, and having the right metrics in place is the only path I am aware of that will permit thoughtful adaptation.

For example, practicality must be a pillar of any effort. A home garden (fruits and vegetables) for a family of four and assuming yields typical of the USA (very generous) would require a plot roughly 12m x 12m. In dense urban areas, this is not feasible. However, are community gardens feasible? What are the positive knock-on consequences of such gardens? These questions are intended to highlight the nuance required in determining metrics – sometimes the thing you change is not the thing that best represents the changes made.

As a last comment, multi-national packaged food companies typically impact the food supply in a very small way, perhaps 5% to 10% of the total food supply in a developing nation (compared to more than 75% in developed). Nonetheless, packaged food may still represent a large portion of the diet though the companies making the foods are locally based. If focus is directed solely at multi-nationals, there is risk of missing the lion's share of the food supply. Any effort must consider all sources of food and beverage entering the food system.

Thank you for considering my comments.

Sincerely,

Richard

Richard Black, PhD

119. Jan van der Velde, WFP, Italy

Comments and inputs from WFP on the issues paper for the HLPE Report on Nutrition and Food Systems.

1. The nutrition dimension seems very much linked to the consumers - the end users of the food produced. This is important, but it might be relevant to also reflect on the linkage between the farmers (who consume their own production) and nutrition - or in other words the linkage between agriculture/production and nutrition. In particular, the report could introduce

production environment challenges and food systems, unless it is addressed in other HLPE studies.

2. Perhaps, it would also be good to include a more concrete question on how to operationalise policies linked to nutrition. This could include for example institutional procurement of nutritious products, public investment in infrastructure to improve production and marketing of nutritious food, etc.

3. When the report talks about stakeholders, "*farmers*" as the main producers of food should be included alongside governments, private sector and civil society.

4. The Issues Note writes that "*The overarching issue in this report shall be to assess the influence of various types of food systems on diets, nutrition and health*." We assume this type of assessment will be more informal than formal? To our knowledge formal assessment methods for assessing food systems are still very much in the 'development stage'. For example see the related work of CIMSANS; available at:http://www.ilsi.org/ResearchFoundation/CIMSANS/Documents/SNS-Metrics-Workshop-Background.pdf

Considering that the overarching issue of this HLPE report will be to "*assess the various types of food systems on diets, nutrition, and health*" - the text could probably be clearer by acknowledging that assessment methods and metrics are still very much being explored and developed. We would suggest that a sentence be added/inserted just before "*It shall consider...*". That inserted sentence could read:

"*Given that formal methods and metrics for assessing food systems are still non-existent or in the very early stages of development; the HLPE assessment work is likely to be more qualitative in nature and grounded in literature reviews and expert opinions.*"

Lastly please add a comment here noting that WFP's food security analysis service (the Vulnerability Analysis and Mapping/VAM unit) is keen to collaborate and/or support HLPE members on matters pertaining to food systems analysis; and the development of methods, metrics, and the underlying data and information systems that are needed to support such analysis.

5. The issues note talks about provision of a conceptual framework (second page, second paragraph). The development of a new food systems conceptual framework could be useful and is probably needed. No doubt existing food security and nutrition conceptual frameworks contain much of what is needed but not everything. One of the key aspects of a '*food systems conceptual framework'* should be incorporating the notion of a 'resilient and sustainable food system' (as also reflected in SDG target 2.4). This is where the greatest challenges are likely to be. Regarding conceptual and analytical frameworks for resilience; the work that has been developed and published by the FSIN TWG on Resilience Measurement (done within a food security context) should be both valuable for this HLPE on food systems. Please see this link for more information: http://www.fsincop.net/topics/resilience-measurement/outupts/en

6. With respect to the questions posed on the second page, WFP VAM routinely collects and analyses a wealth of data and indicators related to these topics/questions listed here. Examples of relevant WFP indicators in this context are the Household level Food Consumption Score (FCS) indicator and the Coping Strategies Index (CSI or rCSI/reduced Coping Strategies Index). Please see http://vam.wfp.org/ for more information amongst others. As noted in an earlier comment WFP VAM is keen to collaborate and/or support the work of the HLPE if needed/appropriate

Please let us know if you have any questions or comments.

Best,

Jan

Jan van der Velde
Policy and Programme Officer
Policy and Programme Division (OSZ)
World Food Programme
Via Cesare Giulio Viola 68/70, 00148 Rome, Italy

120. Andi Sharma, Canada

Speaking from the Northern Canadian Indigenous experience of food insecurity within Canadian food systems, and from the state perspective, these are the following elements that I would hope the HLPE report could speak to:

1. The need to decolonize public policy related to food system access (particularly with respect to traditional indigenous foods)

2. The application of an Indigenous lens to the research, development and implementation of the report.

3. Food sovereignty must be central to the discussion as it implies a whole host of other determinants that is not necessarily captured in food "security" or food systems. Obviously as applied to the Indigenous context.

4. Mechanisms for monitoring and evaluation built into the conceptual framework

5. Concrete evidence-informed public policy prescriptions that serve to operationalize recommendations of the report

6. Not all instances of food system failure (food insecurity) revolve around large-scale agricultural production. In fact, the food system failures that affect the northern Indigenous Canadian experience

of food insecurity are driven precisely beacuse of the geographical limitations of large scale agricultural production. Including a focus on small-scale farming is better but still doesn't account for the physical limitations of the northern canadian coontext. This might be too unique to incorporate, but it would be great to see some consideration given to the different kinds of food system failures (in this case geographical isolation in lands unsuitable for large scale production thereby precluding the possibility of tying eocnomic opportunity to food production on a large scale.)

7. Concerted effort to underpin food insecurity with the grinding poverty that is driven by a lack of economic opportunites in the aforementioned geographically siolated areas. This will likely be drawn out in the discussion on the multiplicity of determinants of health that drive food system failure but just to be sure....

8. Monopoly retailers are a large part of the problem for northern Canada. So a discussion on the role of concentrated corporate power to affect the state's food system policy could be helpful....

Andi Sharma - Senior Food Security Policy Analyst - Government of Manitoba, Canada

121. Santosh Kumar Mishra, Population Education Resource Centre, India

HLPE - High Level Panel of Experts on Food Security and Nutrition

Contribution to: Nutrition and Food Systems: E-consultation on an Issues Note proposed by the HLPE Steering Committee [1]
(http://www.fao.org/fsnforum/cfs-hlpe/nutrition-and-food-systems)

Dr. Santosh Kumar Mishra [2]

[1]: Contribution submitted online on February 17, 2016 (Tuesday) to: FSN-moderator@fao.org and HLPE Secretariat at cfs-hlpe@fao.org

[2]: Dr. Santosh Kumar Mishra, Technical Assistant, Population Education Resource Centre, Department of Continuing and Adult Education and Extension Work, S. N. D. T. Women's University, Patkar Hall Building, First Floor, 1, Nathibai Thackerey Road, Mumbai-400020, Maharashtra, India. **[Email:** drskmishrain@yahoo.com **Tel.:** +91-022-22066892 (O) **Skype:** mishra5959 +91-022-28090363 (R) +09224380445 (M)**]**

1. How and why do diets change?
Diet choice is a complex area because there are a number of factors that affect the population's and an individual's choice of food. Brief description of determinants of diet change is presented below:

- *Biological Determinants (Hunger, Appetite, and Taste/Palatability):*
  - Hunger and Satiety: Humans need energy and nutrients in order to survive and will respond to feelings of hunger and satiety. Different macronutrients have different

effects on satiety. For example, fat is the least satiating, followed by carbohydrates then protein. In addition, low energy density diets have greater satiety than high energy density (e.g. high fat and/or high sugar) diets.

- Taste/Palatability: Palatability increases as the pleasure an individual experiences from eating a food increases. The taste, smell, texture and appearance of a food all impact on the palatability of a food. For example, sweet foods have a high sensory appeal and have higher palatability meaning that the food may be consumed for pleasure rather than as a source of energy and nutrients. It is reported that the higher the palatability of a food, the higher the consumption. There is some evidence so show that preferences for flavors can be acquired through breast milk as flavors from maternal diets pass into breast milk.

- *Economic Determinants (Cost and Income):* The cost of food and the ability of an individual to afford specific foods (related to income) are primary determinants of food choice. Low-income groups are reported to consume unbalanced diets and low intakes of fruit and vegetables. Increasing the amount of available income for food choices, however, does not necessarily mean that individuals will consume a more balanced and healthy diet. In addition, individuals may resist buying new foods for fear that the food made be wasted as the family may reject the food.

- *Physical Determinants (Access, Education, Skills and Time):*
  - Accessibility and Availability: Accessibility to shops and the availability of foods within shops influence food choice. This is associated with transport links and geographical locations. For example, *'food deserts'* are areas of resistance with few or no shopping facilities. Improving access does not necessarily mean that individuals will change their food choice.

  - Education and Knowledge, and Skills: Individuals that are educated and knowledgeable about 'healthy eating' are more likely to opt for healthy dietary choices. This, however, depends on whether the individual is able to apply their knowledge. Educating the population requires accurate and consistent messages. Education on how to increase fruit and vegetable consumption in an affordable way such that no further expense, in money or effort, is incurred may be beneficial for influencing food choices. In addition, a lack of knowledge and the loss of cooking skills can also inhibit buying and preparing meals from basic ingredients.

  - Time Constraints: Time constraints will prevent individuals from adopting healthy choices especially the young and those that live alone who choose convenience foods. The demand has been met with the introduction of more ready-to-cook meals and pre-packed fruits and vegetables (instead of loose). Although the convenience foods are more expensive, customers are willing to pay for them.

- *Social Determinants (Social Class, Culture, and Social Context):*

- Social Class: There are differences in food choices in different social classes which lead to both under- and over-nutrition. For example, people within the higher social class groups tend to have healthier diets (for instance, higher intakes of fruit, lean meat, oily
  fish, *"whole meal products"*, and raw vegetables) compared with manual workers. It is thought that higher socioeconomic groups have healthier diets because they may have higher educational levels and may be more health conscious and have healthier lifestyles. Social class differences in diet are of particular concern with respect to health inequalities.

- Cultural Influences: Cultural influences impact on diet choices and food preparation – evidence has shown that traditions, beliefs and values are among the main factors influencing preference, mode of food preparation, and nutritional status. Cultural habits,
  however, have been shown to change, for example, when individuals move to a new country and adopt the food habits of the local culture. For example, South Asian females migrating to Scotland showed increased fat intakes and this was associated with an increased body mass index, and incidence of heart disease and type 2 diabetes.

- Social Context: Social context includes both the people who have an impact on an individual's eating behavior and the setting in which an individual consumes their dietary choice. People influence an individual's food choices directly and indirectly: buying
  food on behalf of an individual is a direct impact whilst learning from a peer's behavior (conscious or subconscious) has an indirect impact. Social support (e.g. families) can have a beneficial effect on individual's food choice by encouraging and supporting healthy eating practices. The setting for food consumption (e.g. home, school, work, and restaurants) will affect food choice by the availability of food options.

- *Psychological Determinants (Mood, Stress and Guilt):* The evidence supporting psychological determinants and food choice is limited and proposed mechanisms for the relationship are complex. Psychological determinants are outlined below:
  - Stress: Stress can trigger changes in human behaviors that affect health; the effect of stress on food choice is complex and individualistic: some people consume more food and make unhealthy food choices and others consume less food. It is believed that stress induced changes may be due to changes in motivation (e.g. reduced concern for weight control), physiological (reduced appetite), changes in eating opportunities, food availability and meal preparation.

  - Mood: Food can change an individual's temperament and mood and influences food choice. Individuals report food cravings (especially among women during the premenstrual phase) and the relationship with food for dieters mean that people may feel guilty after indulging in food or attempting to restrict food and increasing the desire for the food.

- *Attitudes, Beliefs and Knowledge about Food, and Optimistic Bias:*
    - Attitudes and Beliefs: Consumer attitudes and beliefs vary by individual, within groups of a population and across countries. The Pan-European Survey of Consumer Attitudes to Food, Nutrition and Health found that the top five influences on food choice were *"quality/freshness"* (74%), 'price' (43%), 'taste' (38%), 'trying to eat healthy' (32%) and 'what my family wants to eat' (29%). These were average figures for 15 countries but results differed significantly between countries. Females, older subjects, and more educated subjects considered 'health aspects' more important than other factors whilst males rated 'taste' and 'habit' as the main determinants of food choice.

    - Optimistic Bias: There are a high percentage of individuals who perceive their diets to be healthy and do not believe that they need to make dietary changes. People therefore believe that they are at less risk from a hazard compared to others, e.g., people overestimate their consumption of fruit and vegetables. An individual who considers their diet to already be healthy is less likely to adopt additional healthy eating practices.

2. What are the links between diets, consumption and consumer habits and food systems?

a) **Link between Diets and Consumption:** Nutrition is usually taken to be important for physical health, but mental health (brain health in its widest sense) must be considered as equally important. A diet lacking essential nutrients or containing too many ingredients that are detrimental in excess is likely to have adverse consequences for brain function and thus mental health and behavior. It is widely agreed that a balanced diet is required to support physical health, and there is good scientific evidence suggesting that the Mediterranean diet is a good model. It is likely that a balanced diet of this kind is also beneficial for the healthy functioning of the brain.

It is now established that certain essential fatty acids (EFAs) especially Arachidonic Acid (AA) and Docosahexaenoic Acid (DHA) form an important part of the cellular structure of the brain and in maintaining its normal functions. But there is no nutritional magic bullet. No nutrient works in isolation; a deficiency in one leads to sub optimal functioning of others. The lack of certain nutrients, however, may be associated with a range of mental and behavioral disorders as this report describes. A deficiency of omega-3 EFAs is associated with certain mental and behavioral disorders, such as ADHD, depression, dementia, dyspraxia, greater impulsivity and aggressive behavior, but the association is still only partly understood.

b) **Link between Diets and Consumer Habits:** Recent trends in final food demand show that the concept of food has undergone a radical transformation in recent years to the point to assign to food, in addition to their nutritional and sensory properties, also an important role in the maintenance of health, on psycho-physical well-being and prevention of certain diseases. Today foods are not intended to only satisfy hunger and to provide necessary nutrients for humans but also to prevent nutrition-related diseases and improve physical and mental well-being of the consumers.

Numerous studies in literature have tried to estimate the value of *health* for individuals under different conceptualizations. The importance of concerns about health can be interpreted as a consequence of a number of factors not just related to socio-demographic changes occurred in society over recent years, but also to the important progress made in terms of scientific knowledge about the interactions between diet and health.

On the one hand, therefore, the increase in life expectancy, augmented occurrence of diseases correlated to incorrect dietary habits, including the chronic diseases such as osteoporosis, cancer, cardiovascular diseases, hypertension, and diabetes that are linked to significant increases in sanitary costs, which have made health an increasingly important buying motivation in food choices. Moreover, there are many scientific studies that have shown over the past decade, with an abundance of experimental data, the close connection between diet and health, particularly in relation to chronic diseases, and have encouraged the development of a growing spectrum of products such as: *'nutraceuticals'*, *'medifoods'*, and *'vitafoods'*.

It follows that the attention of consumers towards healthy eating is no longer exclusively focused on the reduction or elimination of substances that are considered negative, but tends to move towards attributes that characterize the product in positive terms, such as freshness and naturalness. Shifting demand towards products with a strong healthy image, as confirmed by several market research conducted at international level

c) **Link between Diets and Food System:** Changes in our understanding of diet and health drive changes in the way foods are processed. Conversely, what is available on the shelf will have an impact on the choices consumers make, thereby affecting their health. Historical examples of industrial manipulation of the diet include:
   - *fortification and enrichment* of cereal grains with vitamins;
   - *increased* production of unsaturated vegetable oils and margarine as substitutions for hydrogenated fat, lard, and butter;
   - *lowered* cholesterol content foods; reduced sugar content foods; lower sodium foods;
   - *decreased* portion sizes or caloric density in prepackaged foods for use in weight loss or maintenance; and
   - *increased* calcium levels to prevent osteoporosis.

   However, degenerative diseases such as cancer, atherosclerosis, bone disease, arthritis, and dementia will continue to be prevalent in the future. Whether or not the food systems available on the shelf can influence all of these disease states is not clear; however, studies have indicated that nutritional factors do contribute to the development of some of these diseases. Patterns in food consumption have changed and will continue to change as recommendations such as decreased consumption of saturated fats, salt, and cholesterol continue to be made.

3. How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes?

In a *"nutrition transition"*, the consumption of foods high in fats and sweeteners is increasing throughout the developing world. The transition, implicated in the rapid rise of obesity and diet-related chronic diseases worldwide, is rooted in the processes of globalization. Globalization affects the nature

of agri-food systems, thereby altering the quantity, type, cost and desirability of foods available for consumption. Understanding the links between globalization and the nutrition transition is, therefore, necessary to help policy makers develop policies, including food policies, for addressing the global burden of chronic disease.

4. What are the determinants of the changes in consumption?
Food consumption and prices are determined by the complex interaction of supply and demand. *In the short run,* supplies are relatively fixed and inflexible, and prices adjust so products clear the market. What is produced is consumed. When supplies go up, price goes down and consumers buy more. Conversely, smaller supplies bring higher prices and smaller purchases. In the long run, farmers adjust production in response to market prices, producing more of higher priced goods and less of lower priced goods. Demand for food in the aggregate is not very responsive to price changes because there is little room for substitution between food and nonfood goods in the consumer's budget. *However,* demand for individual foods is more responsive to prices as consumers substitute among alternative food commodities.

Rising incomes increase expenditures on more expensive foods as consumers demand more convenience and quality. Short-period changes in consumption reflect mostly changes in supply rather than changes in consumer tastes. *Most importantly,* demographic factors, such as changes in household size and in the age distribution of the population, can bring about changes in consumption.

5. How do the dynamics of food systems drive consumption patterns?
If current population and consumption trends continue, humanity will need the equivalent of two Earths to support it by 2030 (Global Footprint Network, 2012). These consumption trends are of particular concern when related to food. The most vital of all sectors and yet the most resource intensive, a global discussion has begun in recognition of the need to address the unsustainable trajectory of the global food system. What has not yet been included in these discussions, however, is the need to go to the roots of the challenge: the increasingly resource-intensive consumption patterns that largely dictate the shape of our global food production system.

6. How to shape and to address pathways to healthy nutrition?
Nutrient intake and health status at the level of the individual are the immediate determinants of nutritional status. These are what one can affect through agriculture. At a basic level, political, economic, and institutional determinants underpin all of these factors. Given these multiple causes, it is clear that no single sector can address malnutrition alone; several sectors have a role to play.

There are two groups in the population that are especially vulnerable to under-nutrition: (a) *'pregnant/lactating women'*, and (b) *'children'*, especially those under two years old. Under-nutrition during a child's critical period (from mother's pregnancy to age two years) can cause irreversible physical and cognitive deficits. For this reason, mothers and young children are often the target groups for nutrition-specific interventions. In food security programs, improving the nutrition of girls and women is an important consideration not only for their own health, but also because the health and nutritional status of pregnant and lactating mothers is critical to the nutrition of children under two. Improving women's nutrition is critical to breaking the intergenerational cycle of under-nutrition and is essential to sustained economic growth, given the negative impact that chronic under-nutrition has on:

a) *productivity,*
b) *educational attainment, and*
c) *income-earning potential.*

Nutrition may be protected if agricultural livelihoods guarantee a reliable and sustainable income and if that income is used to purchase diverse, nutritious food as well as to obtain health care, education, shelter, fuel, and other basic necessities required for a healthy, productive life. Agriculture has a unique role in ensuring access to and availability of diverse, nutritious food. At the same time, agricultural development projects should avoid doing unintentional harm to public health (e.g., by protecting potable water and maintaining an environment free of contaminants) and should support the care of children and families (e.g., by reducing demands on women's use of time and energy). Addressing food availability and access is critically important but may not have a measurable impact on nutritional status, especially if other factors limit child growth, such as poor sanitation, inadequate care practices, or lack of access to quality health services. The strong evidence base that links the use of maternal, infant, and young child feeding and care practices to reductions in chronic malnutrition, across all socioeconomic strata, supports the utility of integrating nutrition social and behavior change (SBC) into agriculture development activities. Framework for malnutrition is depicted in Figure – 1.

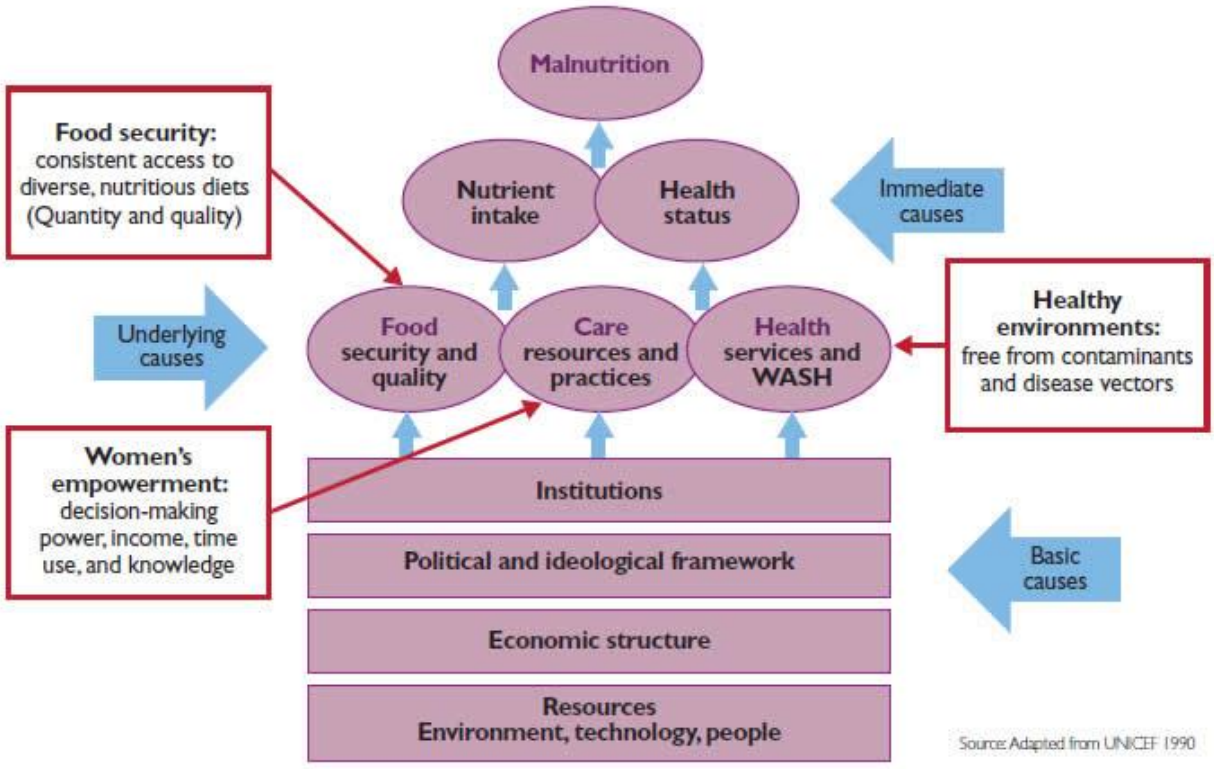


Figure – 1: Framework for Malnutrition (Source: https://www.spring-nutrition.org/publications/briefs/understanding-and-applying-primary-pathways-and-principles, accessed on February 17, 2016)

Agricultural livelihoods affect nutrition of individual household members through multiple pathways and interactions. The framework depicted below (Figure – 2) helps one to understand:

a) *how* various agriculture investments or activities could improve access to food and health care;
b) *how* they impact and are affected by the enabling environment; and
c) *how* they ultimately affect the nutrition of individual women and children.

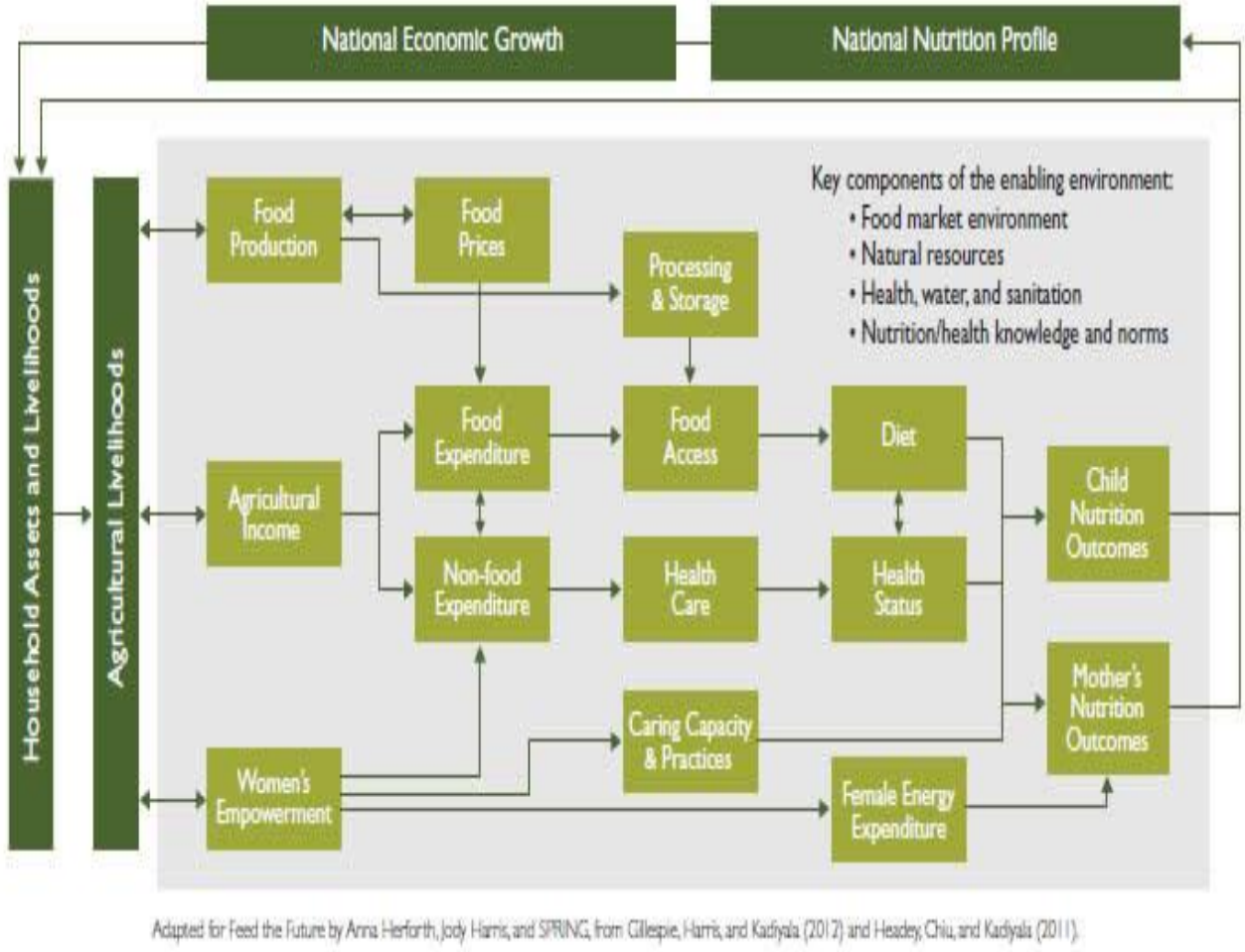


Figure – 2: Conceptual Pathways between Agriculture and Nutrition (Source: Herforth and Harris, 2014)

The pathways are not always linear, and there are many interactions among them. In general, they can be divided into three main routes at the household level:

a) *food production, which can affect the food available for household consumption as well the price of diverse foods;*
b) *agricultural income for expenditure on food and non-food items; and*
c) *women's empowerment, which affects income, caring capacity and practices, and female energy expenditure.*

Acting on all of the routes, outlined above, is the enabling environment for nutrition, including several key components: the natural resources environment; the food market environment; the health, water, and sanitation environment; nutrition/ health knowledge and norms; and other factors, such as policy and governance. These components may affect nutrition of consumers or communities, not only

farmer households. Child nutrition outcomes ultimately feed back into national economic growth and household assets and livelihoods, including those that contribute to both agricultural and nonagricultural sources of income.

The pathways framework is envisioned as a conceptual tool for activity planners to explore ways in which interventions may impact human nutrition. The framework outlines key theoretical steps needed to reach outcomes on dietary consumption or women's income or to have an impact on nutritional status. While these pathways are not linear, and the interactions in some contexts are quite complex, the framework can be a useful tool in activity design. It is also useful for making decisions about how best to measure the success of an approach on its intended outcomes.

The key principles can be used as a broad checklist in the design of nutrition-sensitive activities. The contribution of agriculture to nutrition goals will be different depending on the context and the type of activities undertaken. The first two principles, however (having a nutrition objective and context assessment) will be critical in all cases. Assessing the local context is essential to understanding constraints and opportunities in agriculture and nutrition from all points of view, including the viewpoint of beneficiaries. For example, context assessment can:

a) *identify* causes of under-nutrition and which pathway (s) are primarily implicated.
b) *aid* in defining target groups (e.g., the poorest of the poor or vulnerable but viable farmers) for activities.
c) *help* identify activities of government and nongovernmental organizations in the same areas and other donors' investments to identify synergies and avoid duplicating efforts.

The pathways can also inform the choice of activity-specific indicators for measuring positive impact on nutrition. Appropriate indicators will vary according to which pathways are relevant to the activity design. *However,* indicators of food access and diet quality and diversity are key to linking agriculture investment to nutrition outcomes for vulnerable groups.

Reductions in under-nutrition can be achieved through simultaneous cross-sectoral attention to food, care, and health determinants of nutrition. Interventions in the food system can support farm systems and agricultural livelihoods while also improving diets. This is especially true if the interventions do no harm to health or care practices and support integrated and multi-sectoral programming. The pathways and principles outlined in this brief can guide agriculture activity planning to improve nutrition.

7. What is the role of public policy in promoting healthy, nutritious and culturally appropriate food for all?

Agricultural programs and investments can strengthen impact on nutrition if they:

- *Incorporate explicit nutrition objectives and indicators into their design and track and mitigate potential harms* while seeking synergies with economic, social, and environmental objectives.

- *Assess the context at the local level to design appropriate activities to address the types and causes of malnutrition.*

- *Target the vulnerable and improve equity* through participation, access to resources, and decent employment.

- *Collaborate and coordinate with other sectors* (health, environment, social protection, labor, water and sanitation, education, and energy) and programs through joint strategies with common goals to address concurrently the multiple underlying causes of malnutrition.

- *Maintain or improve the natural resource base* (water, soil, air, climate, and biodiversity), which is critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Manage water resources in particular to reduce vector-borne illness and to ensure sustainable, safe household water sources.

- *Empower women* by ensuring access to productive resources, income opportunities, extension services and information, credit, and labor- and time-saving technologies (including energy and water services) and by supporting their voice in household and farming decisions. Equitable opportunities to earn and learn should be compatible with safe pregnancy and young child feeding.

- *Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock* (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and bio-fortified crops). Diversified production systems are important to vulnerable producers to enable resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.

- *Improve processing, storage, and preservation* to retain nutritional value, shelf life, and food safety; reduce seasonality of food insecurity and post-harvest losses; and make healthy foods convenient to prepare.

- *Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods* or products vulnerable groups have a comparative advantage in producing. This can include innovative promotion (such as marketing based on nutrient content), value addition, access to price information, and farmer associations.

- *Incorporate nutrition promotion and education around food and sustainable food systems that builds on existing local knowledge, attitudes, and practices.* Nutrition knowledge can enhance the impact of production and income in rural households, which is especially important for women and young children, and can increase demand for nutritious foods in the general population.

Food and agriculture policies can have a better impact on nutrition if they:

- *Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious, and safe foods through environmentally sustainable production, trade, and distribution.* Focus on horticulture, legumes, and small-scale livestock and fish—foods that are relatively unavailable and expensive but nutrient rich and vastly underutilized as sources of both food and income.

- *Monitor dietary consumption and access to safe, diverse, and nutritious foods.* The data could include food prices of diverse foods and dietary consumption indicators for vulnerable groups.

- *Include measures that protect and empower the poor and women.* Safety nets that allow people to access nutritious food during shocks or seasonal times when income is low; land tenure rights; equitable access to productive resources; and market access, including information and infrastructure, for vulnerable producers. Recognizing that a majority of the poor are women, ensure equitable access to all of the above for women.

- *Develop capacity* in human resources and institutions to improve nutrition through the food and agriculture sectors, supported with adequate financing.

- *Support multi-sectoral strategies to improve nutrition* within national, regional, and local government structures.

8. How to build on the diversity of the existing food systems?

Unsustainable production patterns cannot successfully be addressed without acknowledging the consumptive drivers that shape and largely dictate the design of these production systems. Consumptive demand and productive supply elements must be addressed systemically.

The key drivers behind unsustainable food consumption patterns (growing population, increasing urbanization and rising incomes) are likely to continue. Thus concrete action is needed by the public and private sectors and with the support of NGOs, intergovernmental organizations and consumers to redirect elements of the universally observed nutrition transition to diets based on less *"resource-intensive foods"*. The increased consumption of animal products, including fish, deserves particular attention.

Consumptive trends are detrimentally affecting health. The social and economic costs of now widespread diet-related illnesses are straining individuals, families and national healthcare budgets.

Consumptive trends are negatively affecting the agro-ecological resource base and its ability to produce sustainably. Land degradation, declining soil fertility, unsustainable water use, overfishing, and marine environment degradation are all lessening the ability of the natural resource base to supply food. It is expected that this problem will be exacerbated by the effects of climate change.

Consumptive trends are adversely affecting food security. *Firstly,* overconsumption in developed and developing countries has a direct impact on food prices, disproportionately affecting food accessibility for the poor. *Secondly,* the intensive production methods that have come to define modern food production are a direct response to increased demand for more resource-intensive food products. Thirdly, intensive production of *"resource-intensive foods"* depletes the agro-ecological resource base, affecting its ability to produce plentiful food.

Curbing the amount of food loss and waste generated annually, across the globe, is a tangible starting point for effective collaborative action in this arena. Initiatives already underway provide valuable case studies for adaptation and replication globally.

9. What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems?

- ✓ *National governments* must begin to adopt more comprehensive approaches to food systems, particularly by incorporating consumption elements into the production-centred mix.

- ✓ *Private sector companies* working in the agriculture and food sectors must add consumption components to their growing sustainability agendas and business models.

- ✓ *Consumers*, whether in developing, emerging or developed countries must see the value of the food they eat, nutritionally and economically, while also being aware of the environmental impacts of their choices. Waste and food loss can be addressed in all of these arenas through a number of activities that are applicable to governments, businesses and consumers.

10. What action should different stakeholders, including governments, civil society and the private sector, take?

Section – I: *Actions for the Public Sector*: Following actions for the public sector are suggested:

- ✓ Adopt "*sustainable diets"* as a policy lens. 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" (FAO, 2009). The adoption of a comprehensive "sustainable diets" approach to agriculture and food policy making could help structure and develop a coherent and sustainable set of policy tools to support nutritional health, food security and agro-ecological systems.

- ✓ Reduce or eliminate subsidies that encourage unsustainable consumption and waste, and consider tax options to shift consumption patterns.

- ✓ Design and conduct targeted public awareness campaigns on unsustainable food consumption and food waste. Public awareness campaigns can play a significant role in addressing and curbing unsustainable food consumption. Designed to meet specific goals and to reach particular populations, they have played important roles in successfully changing consumers' dietary patterns, for health, socioeconomic or food security reasons, in both developed and developing countries.

- ✓ Consider implementing advertising and marketing regulatory measures to curb the influence of campaigns for unhealthy and unsustainably produced foods. This is especially important for advertising that specifically targets children.

- ✓ Use public procurement as a catalyst for change. Public procurement policy has a role to play in decreasing unsustainable food consumption given the significant amounts of food purchased for use in public institutions.

- ✓ Improve availability of agricultural technologies and infrastructure to reduce food losses in developing countries. These losses lead to less food availability, higher prices for the producer

and consumer, lost income for producers and governments, and wasted agro- ecological resources in the form of land, soil nutrients, water and other inputs.

- ✓ Increase inter-governmental coordination for sustainable food systems. Governments, with the help of intergovernmental organizations and NGOs, must work collaboratively to develop initiatives that bring the public and private sectors together on food consumption and production issues.

Section – II: *Actions for the Private Sector:* While a concept of *"consume less"* may sound antithetical to profit-oriented enterprises, the strategy for halting or reversing unsustainable food consumption trends is rather based on *"consume smarter"*. The private sector can work together, and with the support of non-governmental organizations (NGOs) and inter-governmental organizations, to realize business opportunities in curbing unsustainable food consumption. Following actions for the private sector are suggested:

- ✓ Decouple economic growth from resource intensity across the supply chain. Decoupling does not imply a reduction in economic output but rather maintaining, or even improving, economic performance through better resource efficiency. The private sector can use less to produce more. This makes sound business sense as well as having positive effects on the agro-ecological resource base and food security.

- ✓ Reduce waste at the retail and consumer levels. There is a role for government in curbing this waste through public information campaigns and the use of other policy measures. *However,* there are clear business opportunities for doing so as well, not the least of which is a more efficient supply chain.

- ✓ Use certification, standards and labeling to capture market share and to shape consumption. Adoption of voluntary certification schemes, standards and eco-labelling approaches can increase awareness of consumers, build loyalty for sustainably-certified products and shape consumption patterns – all resulting in more sustainable food consumption. It can also be profitable for businesses.

- ✓ Increase private sector collaboration for sustainable food consumption and food systems. As does the public sector, the private sector needs to increase cooperation to strengthen efforts in the food consumption arena. Sustainability-focused consortiums provide *"action-oriented Platforms"* for industry-related sustainability dialogue and for sharing best practices and emerging tools. Existing consortiums can incorporate the food consumption issue – as some already have – and industry sustainability leaders can initiate new endeavors on the topic.

Note: Areas for Further Enquiry:

There are areas that require further enquiry and analysis in the food consumption arena that were not fully addressed in the *above presentation*. Investigation into the following six areas is desired:

- The cultural and gender aspects of food consumption are central to any discussion on the topic and must be comprehensively understood if progress towards sustainable food consumption is to be made.

- The further development of the *"sustainable diet"* concept as an entry point for "*decision-making"* requires careful consideration. The notion of a *"sufficiency-based diet"* could contribute to shaping the development of this topic. While it can be viewed as having philosophical elements, the concept of a sufficiency-based diet is actually a pragmatic tool rooted in the fact that food production is entirely dependent on natural systems. A *"sufficiency-based diet"* pre-supposes that a food system is designed to respond to the long-term needs of people and the resource base that supports them.

- The development of criteria or methodologies for identification of *"food consumption hotspots"* would be valuable for tracking, curbing and sharing the effects of unsustainable food consumption patterns at local through to landscape and global levels. The Food and Agricultural Organization (FAO) has done some work on developing the hotspots concept for application, more generally, to the agricultural/ecological interface. This work can inform the development of a *"food consumption hotspot identification tool"* to advance the understanding of the relationship between unsustainable food consumption, the agro-ecological resource base and food security.

- While the private sector has begun to investigate its role in curbing unsustainable food consumption patterns, much more work needs to be done in *"making the business case"* for private sector innovation in this area. Central tenets of *"sustainable supply chains"* (including resource efficiency and lifecycle analysis) have a unique role to play in curbing unsustainable food consumption patterns from the supply side. The NGO-sector has an important role to play in assisting the private sector in this task.

- In practice, inter-ministerial collaboration at the national level is very difficult to implement as evidenced by a lack of such successful coordination worldwide. An enquiry into how this might be more effectively accomplished (in this case to facilitate a systemic approach to sustainable food systems through national policy making) needs considerable attention and reporting where lessons have been learned.

- Both intergovernmental and public-private collaboration is more challenging in reality than it appears on paper. *However,* as the global food system is increasingly shaped by universal trends in food consumption, more efforts need to be made to protect the *"agro-ecological resource base"* that ensures appropriate nourishment and food security for all. Designing collaborative instruments for sustainable food consumption will be particularly challenging, given the cultural and political implications. *However,* examples of such collaboration are emerging. More initiatives of this type need to be developed and supported to foster the necessary dialogue on the topic of food consumption. NGOs have a valuable role to play in catalyzing these partnerships.

Biographical Sketch of Contributor *(Dr. Santosh Kumar Mishra)*

I am researcher & demographer employed as Technical Assistant (since August 1987) with the Population Education Resource Centre (PERC), Department of Continuing and Adult Education and Extension Work, S. N. D. T. Women's University (SNDTWU, http://sndt.ac.in/) located at Mumbai in India. I underwent training in demography from the IIPS, Mumbai, India (http://www.iipsindia.org/) & acquired Ph. D. in 1999. Also, I completed Diploma in Adult and Continuing Education & HRD, and Certificate Course in Hospital & Health Care Management. My subject areas of interest / research include: population & development education, issues pertaining to population-development linkages, education for sustainable development, adult & continuing education/non-formal/extension education, etc. Responsibility at the PERC, SNDTWU is assistance in: (a) *research studies*, (b) *training/ orientation for various levels of personnel*, (c) *curriculum developmen*t, (d) *material production / publication*, (e) *monitoring/ evaluation,* and (f) *other extension program on population education & allied subjects.* My work experience includes (a) helping PERC in research studies, material preparation, data collection, documentation & dissemination, preparing reports, organizing training/orientation programs/workshops, monitoring & evaluation of population education programs, and curriculum design; (b) publications (articles, technical papers, etc.); (c) contribution of papers in national and international seminars/ conferences; documentation and dissemination of population information; (d) review of papers for national and international journals (in the capacity of reviewer / editor); (e) review of conference sessions; (f) preparation of educational materials (print version) for other organizations, (g) assistance in preparing evaluation tool; (h) assistance in evaluation of Ph. D. theses, dissertations & projects reports; (i) editing and proofreading of book, book chapters, etc.; & (j) mentoring students in their studies & counseling students & parents in career planning matters during informal interactions – both at workplace and outside. I am Reviewer/Editorial Board Member for 50 international journals. I have also reviewed papers for 12 international conference sessions, including EURAM 2014 Conference (4-7 June 2014, University of Valencia, http://site.aace.org). I have authored (some co-authored) 5 research studies (published by SNDTWU); 32 papers for national conferences & 11 papers for international conferences; 5 handbooks/booklets (published by the SNDTWU); 5 books, & 11 book chapters. In addition, I have 32 articles published in national journals and 22 in international journals, besides 2 monographs. I was awarded Government of India fellowship at the IIPS & travel scholarship for sharing my research views at international conferences and summits held in Pakistan, Tanzania, Sweden, USA, Tajikistan, and Australia. I am Advisory Board Member of the American Academic & Scholarly Research Center (http://aasrc.org/?page_id=38) and Reviewer-cum-International Advisory Board Member for the AASRC 2013 International Conference-Beirut, Lebanon (http://aasrc.org/conference/? page_id=803). I can be reached at: **Email:** drskmishrain@yahoo.com | **Skype:** mishra5959 | **Tel.:** +91-022-22066892 (O) +91-022-28090363 (R) +09224380445 (M).

122. Max Julio Maguiña Maza, Peru

Desarrollo de Invernaderos Autosostenidos en zonas alto andinas del Perú (mejor forma de controlar las inclemencias de la naturaleza – estas causan pobreza, desnutrición y abandono de la serranía del país).

El Perú cuenta con extensas áreas de superficie (128.5 millones de hectáreas), que una buena parte de ella se puede aprovechar para la agricultura; actualmente solo el 1% se utiliza (según datos de la

FAOSTAT); para nuestro caso nos centramos en la zona de la sierra del Perú, la cual cuenta con 35.1 millones de hectáreas de superficie, de las cuales 1.3 millones de hectáreas son terrenos con aptitud de cultivo y de esto solo 20000 hectáreas es de cultivo permanente; actualmente el resto de las superficies no se puede aprovechar en forma continua porque las inclemencias de la naturaleza (heladas, granizadas, falta de lluvias, exceso de lluvias, erosión, etc.) no permite; y unos cuantos Agricultores del Ande se atreven a cultivar (en épocas de lluvia) con la incertidumbre de lograr o no su cosecha (por necesidad), pero el riesgo es alto. Según datos los rendimientos obtenidos son deficientes comparados con otras zonas de bajo riesgo.

Pero a pesar de lo anterior el Perú es un país premiado por Dios, ya que contamos con todo los recursos para realizar una agricultura intensiva; pero para esto se necesita inversión, y creo que es el momento de realizar (Según proyecciones de la FAO, estamos en una inseguridad alimentaria, por problemas medioambientales) estos trabajos porque es una oportunidad para nuestro país por la demanda creciente de alimentos que se presenta en el mundo; ya que superficie tenemos, agua tenemos; en la zona de la sierra del Perú se tiene precipitaciones por encima de 350 mm de precipitación anual, la que se puede aprovechar tranquilamente para cultivar todo el año; además, para mantener adecuadamente todo el sistema de cultivo se necesita energía, también contamos, en las mismas zonas el índice de irradiación varia de 5.5 a 6 Kwh/m2.

Para lograr dominar la naturaleza y aprovechar sus recursos es mediante **invernaderos autosostenidos** (el agua se capta de los techos y son almacenados en estanques apropiados, la energía que necesita para mantener todo el invernadero es energía solar fotovoltaica – instalados en los techos de los almacenes u oficinas), para ello se cuenta con tecnologías desarrolladas en todo el mundo (desde México, España u Holanda, entre otros) que se encuentran a disposición; entonces solo queda la decisión de invertir.

Invirtiendo aproximadamente $250000 por hectárea podemos tener una sierra agrícola intensiva con producción permanente, podemos desarrollar con pequeños parceleros, fundos, comunidades campesinas o empresas privadas, etc. Convirtiéndoles en empresarios agrícolas.

Para dar inicio a este proyecto tenemos que desarrollar un invernadero piloto de 1 ha mínimo, para determinar todas las variables necesarias (de construcción, soporte, rendimientos, calidad, necesidad de personal, costos reales, etc.) y multiplicar lo aprendido.

Lo más importante de todo esto es que se producirán alimentos orgánicos con el plus nutricional que le confiere el desarrollo de estas plantas en las alturas.

123. Phillip Nkunika, Zambia

Indigenous foods are likely to play an important role in maternal and child nutrition in developing countries, yet the contribution of edible insects to the diet is not well understood. Insects are increasingly being recognised as critical to improving food and nutritional security. Although there

are over 2000 insect species, believed to be consumed, in many countries, they are not perceived as an essential part of the diet. There is need to popularise the eating of insects. This call for a change in mind se