HLPE e-consultation
to set the track of the study on:

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

From 25 November 2014 to 22 January 2015

http://www.fao.org/fsnforum/cfs-hlpe/Sust-Agr-Dev-Livestock-scope

– 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)

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Topic

At its 41st session in October 2014, the CFS has requested the HLPE to prepare a study on *Sustainable agricultural development for food security and nutrition, including the role of livestock*, to feed into CFS debates at the CFS Plenary session of October 2016.

As part of its report elaboration process, the HLPE is launching an **e-consultation** to seek views and comments on the following scope and building blocks of the report, outlined below, as proposed by the HLPE Steering Committee. Part A will set the context, drivers and challenges. Part B, exploring pathways, will constitute the greater part of the report.

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

http://www.fao.org/fsnforum/cfs-hlpe/Sust-Agr-Dev-Livestock-Scope

Please note that in parallel to this scoping consultation, **the HLPE is calling for interested experts to candidate to the Project Team for this report**. The Project Team will be selected by end January 2015 and work from February 2015 to April 2016. The call for candidature is open until 22 January 2015; visit the HLPE website www.fao.org/cfs/cfs-hlpe for more details.

Proposed draft Scope of the HLPE Report by the HLPE Steering Committee

A) Context: drivers and challenges

1. The HLPE report will begin with a critical assessment of existing projections of future food demand, including animal-sourced food. It will review projections by FAO and other foresight reports with particular reference to the rapid escalation of the demand for animal-source foods and feed, edible oils and non-food products, including the assumptions which are grounding these projections, on evolution of diets as well as on food losses and waste, and trade.
2. The report will then assess implications (challenges and opportunities) of these trends for:
3. food security and nutrition (in particular nutrient deficiencies, obesity and chronic diseases), the realization of the right to food, highlighting gender considerations, as well as inequalities;
4. access to land and natural resources;
5. agricultural production and productivity increases;
6. economic development;
7. the health of the environment and ecosystems, including climate change and biodiversity.

B) Achieving sustainable agricultural development for food security and nutrition

8. In the light of these projections, the report will review the sustainability challenges for crop and livestock-based agricultural and food systems, including pastoral systems, in diverse agro-ecosystems and for various farm sizes, taking account of threats to the sustainability of these systems, including animal diseases, pest and diseases, and energy needs.
9. The report will identify objectives and elements of sustainable approaches to agriculture, including livestock, ensuring food security and nutrition for all without compromising the economic, environmental and social bases for the food security and nutrition of future generations. It will identify critical priorities ("tipping points" that need absolutely to be addressed) and objectives. All three dimensions of sustainability will be included and the report will consider relevant metrics.
10. The report will explore pathways towards sustainable crop and livestock-based systems, and options for managing the transition to sustainable systems:
11. Given the role of livestock as an engine for the development of the agriculture and food sector, as a driver of major economic, social and environmental changes in food systems worldwide, particular attention will be paid to the role of livestock in these pathways.
12. The investigation will encompass practices, including agro-ecological practices, diversification at all scales, as well as broader perspectives from food chains to food systems (including consumption patterns), local versus global approaches, trade and investment.
13. The report will identify barriers to change, including in institutions, organizations, policies and governance, and potential options to overcome them.
14. It will cover the enabling environment necessary to trigger or accompany transition: the role of public policies and tools to promote and facilitate transition to sustainable systems.
15. Conclusions and recommendations for policies and actions.

Contributions received

1. Hilal Abdulqader, Iraq

According to the Government of Iraq (GoI) Comprehensive Food Security and Vulnerability Analysis (CFSVA), 3 percent of the population are food insecure and an additional 22 percent are vulnerable to food insecurity without the Public Distribution System (PDS) and increasing continuously. The PDS provides each Iraqi citizen with a monthly food basket with a nutritional value of 2,200 k/cal per day, but suffers from general ineffectiveness and inefficiency, which means the population rarely receives the correct quantity at the right time.

The combination of immediate improvement in access to food, through short-term (CFW) assistance, and longer-term improvement in food availability and access through rehabilitation of livelihood assets and agricultural training and capacity building will result in sustainable improvements in the efficiency of food production and will reflect positively on the food security.

Agricultural Inputs and Training: This component aims to improve food security and nutrition of the vulnerable rural populations in Iraq by increasing domestic production of agriculture products that will be brought about by provision of necessary inputs, capacity building and technical support. The FAO Mid-term Strategy for Iraq (2009-2014) and the CPF 2014-2017 have sought to curb the chronically high level of food security and malnutrition among the Iraqi population and combined with the severe impact of the ongoing drought in Iraq, the situation has further aggravated the situation of food availability and nutrition in Iraq. There is need for implementation of quick impact programmes.

2. Vakur Sumer, Selcuk University, Turkey

One of the questions that the study should focus is related with the role of water management policies in agriculture and food production.

More specifically, how can we integrate the rising trend in water management, i.e. "water quality focus" with priorities of the developing nations which aspire to expand the areas under irrigation in order to keep up with the population pressures. This dichotomy, for instance, demonstrates itself even in several regions of the EU (in agriculture-based regions in particular) where rules of the Water Framework Directive, with its challenging full-cost-recovery principle, can be at odds with what most of the farmers are thinking as well as practically doing. Implementation of such policies could be counterproductive in settings where water users, mainly farmers, are unable to pay the new price tag on water. On the other hand, continued "wild" water-use and excessive groundwater use for irrigation could equally be disastrous for the sustainablity of the fields.

Can we rely on "virtual water" for resolution of the problems associated with water-scarce regions and/or water-expensive settings? Multiple layers of governance, be they national, regional, local, international; adds more complexity to decision-making, and more difficult than that, to implementation of what has been decided. Reaching a balance among competing interests, competing water-uses etc., which are prerequisites for sound policies is not straighforward.

3. Laura Iesue, New Mexico State University, United States of America

I have worked in the poultry field for approximately 4 years, while working towards my MA through New Mexico State. First and foremost, I am interested in contributing to the committee in whatever way possible. I will address this through the webpage accordingly.

In regards to sustainability and livestock agriculture, one area that would be interesting to consider is the discussion of the stigma 'animal/chicken byproduct meal' in pet foods, while continuing to want more all natural, and sustainable diets for our pets as well as ourselves. One major form of sustainability is the use of poultry and other animals that are either spent in their production means, or the utilization of animal byproducts that individuals in certain countries typically see as unappetizing. Many farms in the US have contracts or conduct businesses with rendering or live hauling programs that can euthanize and utilize these byproduct sources into things such as dog foods or animal meal or can even transport live animals to other countries or markets that would better utilize what we don't typically care to consume.

There is a huge disconnect in this sustainability practice and it needs to be addressed!

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

I made a presentation titled ENHANCING PRODUCTIVITY TO SUSTAIN PRODUCTION AND NUTRITION SECURITY at the one day conference organized by the Chennai chapter of NAAS on 23rd November, 2014 at MSSRF Chennai.I am attaching the paper.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Chapter%207.docx

5. Koen Van Troos, CELEP, Belgium

I would like to show our interest to contribute to this study on behalf of the Coalition of European Lobbies for Eastern African Pastoralism (CELEP). CELEP is an informal advocacy coalition of European organizations, groups and experts working in partnership with pastoralist organizations, groups and experts in Eastern Africa. The Members of the Coalition work together to raise awareness to their national governments and EU bodies to explicitly recognize and support pastoralism (and the people that practice pastoralism: pastoralists) in the drylands of Eastern Africa. Currently, CELEP is composed of about 25 European members and 7 Eastern African Partner organizations and is currently managed by Vétérinaires Sans Frontières Belgium. Through CELEP, significant contributions regarding pastoralism could be given to nourish the report. The Coalition can offer insights from the ground, expertise, statistics and figures thanks to its structure

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/UPDATE%202014%20-%20Mobility%20Position%20paper%20CELEP%20final.pdf

6. John Sugden, United Kingdom

There is no mention of addressing the biggest problems mineral depletion in soil across the Globe over 100 years.both livestock and the very crops they rely once entering the human food chain complete the circle creating nutrient deficient humans.The compromised immune system leaves everyone wide open to opportunistic viruses and diseases.Only a Country by Country fortification programme together with the banning of processed foods refined cereals et al.

Drastic measures regarding sugar use either banning completely or huge taxes levied on producers which could be paid directly to organisations dealing with obesity .Whilst this is happening enrichment of soils with zinc and selenium to protect the new generation of crops

7. Ibrahima Seck, ASPAB, Senegal

Agriculture Familiale Durable Comme Modele D'agriculture En Afrique :

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/AGRICULTURE%20FAMILIALE%20DURABLE%20COMME%20MODELE%20D%20AGRICULTURE%20EN%20AFRIQUE_0.pdf

8. Kiriaki Orpinel, Mexico

A la propuesta le hace falta -cuando menos no lo leí como un punto importante- el abasto de agua, sin agua no hay todo lo demás y es una crisis presente como impacto "del desarrollo" (ese que se propone desde fuera) la mineria, la extracción de pinos, encinos y demás arboles, la agricultura intensiva, entre varias más que consumen el vital liquído para la sobrevivencia humana y la poca agua que deja "el desarrollo" se contamina con deshechos de eso mismo.

La nutrición no podra ser efectiva si dejamos de lado el suministro de agua potable a cada hogar.

Dentro de la dieta tradicional (en el caso del pueblo rarámuri o tarahumara) el agua en el bosque o monte es primordial pues la necesitan las plantas, túberculos y raíces que colectan para su alimentación así como los animalitos que cazan requieren del agua.

9. Jean Emile Song Mineyem, Cameroon

Bonjour à Tous. Les habitudes alimentaires locales sont une des causes de l'insécurité alimentaire dans les ménages au Cameroun. Du Nord au Sud et de l'Est à l'Ouest du pays, les disponibilités alimentaires en terme de racines, tubercules, inescte, feuilles... existent et peuvent améliorer significativement l'apport en oligo elements. l'etat de lieux de la nutrition devrait ressortir cet aspect de chose et proposer des solutions durables au niveau des ménages.

10. Maurizio Dioli

Any sustainable agricultural development for food security and nutrition should seriously take into consideration that the 21st century will be an arid century with erratic and unpredictable rainfall (Philip K. Thorton et al. Agriculture and food systems in sub-Saharan Africa in a 4°C+ world. Phil. Trans. R. Soc. A, January 13, 2011 369:117-136). The decrease in growing season length and the increase in rain-fed crop failures will make many marginal areas, today used for subsistence agriculture, totally unusable. Furthermore in such areas it will not be possible to productively keep livestock species such as small ruminant and cattle. The potential catastrophic level of climate disruption will exacerbate local conflicts and population migrations and will certainly cause severe over-use, erosion and degradation of large areas. There should be massive emphasis on dromedary and camel keeping through: specialized training, creation of restocking herds and introduction of camel herds in suitable areas. All this accompanied by promotion and support toward nomadic/semi-nomadic life styles.

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

Please have this in consideration:

Will minimizing food waste affect the growth of agriculture/farmers?

How will minimizing food waste affect the rest of the food value chain?

12. Bruno Dorin, CSH & CIRAD/CIRED, India

In the attached files (2 page only, published in a little book on deforestation), I tried to present two contrasted visions on the future of agriculture (including livestock) which may be useful to the forthcoming HLPE study and the discussions. I drew on the foresight study "Agrimonde" (scenarios and challenges for feeding the world in 2050) and some other work on structural transformation, employment and labor productivity in agriculture. Visions are part of the drivers and challenges, and they shape our future.

13. Folorunsho Olayemi, Nigeria Stored Products Research Institute, Nigeria

One issue that sustainable agricultural development for food security and nutrition should address is how to change animal proteinous foods from ceremonial to essential products especially for rural dwellers in developing countries. Poultry products especially eggs which are the cheapest animal protein source are not adequately available in the rural areas because of the bad road network, inadequate and inappropriate storage facilities, fragile nature of eggs and lack of extension agents with needed vaccines. The resultant effect is inadequate availablity of these products leading to them been consumed during festive periods or special occasion.

Development of effective post harvest handling of eggs into powdery form and adequate distribution will be able to reduce these challenges especially in the rural communities. This is one of the surest way of increasing the lacking animal protein for developing countries.

14. Hubert Ndolo, COPACO-PRP, Democratic Republic of the Congo

La population africaine est nourrie à 75% par les productions provenant des paysans. L'agriculture familiale demeure la meilleure solution pour lutter contre la pauvreté et l'insécurité alimentaire en Afrique. Elle doit être centrée sur les paysans eux-mêmes et non influencée par les politiques au nom et en lieu et place de ces derniers. La subvention des organisations paysannes devrait âtre une priorité pour les gouvernements de nos pays afin de donner un coup de pousse à celles-ci.

Cependant, le constat est très amer, lorsqu'on constate par exemple pour notre pays que, pendant que les Nations Unies décrètent 2014, Année Internationale de l'agriculture Familiale, le gouvernement lance un vaste projet de 23 Parcs Agro-industriels dont le premier à Bukanga Lonzo, a démarré avec un financement de plus de 80 millions de dollars. Aucune annonce sur ce grand événement depuis le debut de l'année et voilà que nous nous trouvons à sa fin. Il est clair que ce n'est pas la priorité pour le gouvernement.

Par ailleurs, nous avions souhaité que les parcs agricoles soient implantés pour soutenir les efforts des paisibles citoyens paysans répartis dans les environs. On constate toujours qu'ils ne sont pas impliqués sinon pour applaudir lorsque les autorités politico-administratives sont en visite sur le site.

Les paysans vont petit à petit être transformés en ouvriers agricoles et par ricochet, perdront leur identité.

Nous avons toujours plaidé pour une implication des dynamiques paysannes en RDC dans les instances de prise de décisions au lieu de les subir.

Ir Hubert K. NDOLO

15. Yassin Mashuubu, Ilonga-Agricultural Research Institute, Tanzania

I would advice the respective authority to include Aquatic agriculture as one of the component of sustainable agriculture. Due to the changing, there is a need to direct or develop a theme related to Improved Aquatic agriculture for rural livelihood sustainability.

Yassin Y Mashuubu

16. Faustin Kopangoye, Réseau de Living Labs de Developpement Durable et de l'Innovation, Gabon

Bonjour Monsieur,

nous répondons favorablement a votre offre de participation a cette importante question , nous vous transmettrons dans les jours qui suivent un draft sur nos travaux sur le projet pilote de gestion durable de la viande de brousse et de la mise en place des mécanismes de création de la filière viande de brousse en valorisant toute la chaine.

la mise en place des stratégies de valorisation des terres contre l'accaparement des terres par les multi nationales.

et un modele de collaboration entre les populations riveraines et les multi nationales dans le cadre de la Reseponsabilité Sociétale des entreprises.

dans l'attente de savoir si nous avons été retenue , nous reviendrons avec détails pour repondre

Le rapport analysera ensuite les incidences (défis et opportunités) de ces tendances sur le plan de :

- la sécurité alimentaire et la nutrition (en particulier, les carences en nutriments, l'obésité et les maladies chroniques), la réalisation du droit à l'alimentation, en faisant ressortir les considérations liées aux différences entre les sexes, ainsi qu'aux inégalités ;
- l'accès à la terre et aux ressources naturelles ;
- l'accroissement de la production et de la productivité agricoles ;
- le développement économique ;
- la santé de l'environnement et des écosystèmes, y compris le changement climatique et la biodiversité.

17. Shekhar N Ojha, Central Institute of Fisheries Education, Mumbai, India

Gender inequality can be a cause as well as an effect of hunger and malnutrition. A program evaluation from four Asian countries indicated that agricultural training combined with nutrition education empowered women in their ability to offer healthy diets to their families through

homestead gardening, while being associated with improved nutritional status. Farmer Field Schools are another practical example of how agricultural development can be both gender-and nutrition-sensitive and complementary to other health-based nutrition interventions. Gender and nutrition are often mainstreamed in Farmer Field Schools, including Junior Farmer Field Schools. There are plans to standardize this approach as part of greater efforts to maximize positive nutritional impact through agriculture.In addition to that, women assume managerial roles at these schools (e.g. presidents, treasurers) with the same frequency as the men. These schools not only directly empower women, but they also enable men to change their view on women. Against this backdrop, following pathways may be chosen to ensure nutritional security through gender mainstreaming, child care programmes and fisheries.

Pathway 1

Women's participation in aquaculture may have certain effects on improving family nutritional status

Pathway 2

Encouraging women to paricipate in the fisheries related movements

Pathway 3

Organize picnic for collective feeding session for underweight and malnourished infants under the Positive Deviance (PD) approach, an intervention aimed at reducing malnutrition among children less than three years of age in West Bengal. For twelve days in a month, mothers with undernourished children may follow this regime. This is followed up by an 18-day break wherein care givers monitor the feeding practices in the respective child's homes and record progress. Every month the malnourished child may be weighed and in most cases, mothers may find their children gaining weight between 100 and 600 gm. A pleasant surprise and a great moral booster for them

Pathway 4

The scope is for an improvement and expansion of food sources in the village school, which is a center of grassroots level in the remote areas.

Pathway 5:

In India there is a need to link Village (Panchayat) Ponds developed under National Rural Employment Guarantee Scheme (NREGS); Village Childcare Centers (Anganwadi) and Village Schools and Earn while you learn for teachers, Women Self Help Groups, Farmers Friends , Farmers Field Schools and students.

18. Ibrahima Seck, ASPAB, Senegal

The participant shared the paper "Agriculture familiale durable comme modele d'agriculture en afrique"

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/AGRICULTURE%20FAMILIALE%20DURABLE%20COMME%20MODELE%20D%20AGRICULTURE%20EN%20AFRIQUE.pdf

19. Mitiku Eshetu Guya, Haramaya University, Ethiopia

I would like to comment inclusion of pastoral production in a broader way as they are the most economically vulnerable community to different natural, political and manmade shocks and hazards. Moreover, livestock production in the pastoral areas is tradition and focused on livestock number rather than their productivity. This leads to degradation of rangelands and reduces its carrying capacity. Facilities like road, water supply, feed production, veterinary service and market outlet are determinant factors to bring sustainable development in the pastoral areas of East Africa. Combating illegal livestock trade is also one of the major problems that make the pastoralists the least beneficiary from their livestock resources.

The local livestock breeds are less productive but well adapted to the harsh environment and the traditional pastoral livestock management system. Giving prior attention for livestock genetic potential improvement through developing synthetic breed seems pertinent for sustainable livestock sector development. Last but not least is animal welfare at slaughter houses and abattoirs. This is critical especially while slaughtering camel in Jigjiga and Dire Dawa town of Ethiopia. In this practice first the camel hind leg is cut at knee to immobilize for slaughtering.

This practice is inhumane and very cruel way of immobilizing life animal as the animal is conscious and fully feel the pain. I have attached pictures for your information (http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Figures_Camel%20knee%20cut%20before%20slaughter_0.docx).

20. Roger Leakey, United Kingdom

Few smallholder farmers in the tropics/sub-tropics grow staple food crops at anything near their potential yield (e.g. maize potential yield is 7-9 tonnes/ha and the average actual yield in Africa is about 2 tonnes/ha). If this yield gap could be filled it would solve the issues of food security, indeed there would be an excess. Filling the yield gap requires better soil/land husbandry (improved soil fertility and soil ecological health), especially as poor farmers cannot afford to buy fertilizers and pesticides. The use of leguminous trees and shrubs as 2-3 year "Improved fallows" or "relay cropping" can partially restore crop yields (for maize to about 4-5 tonnes/ha), so freeing land for other crops, especially cash crops like fruit trees. The farmer then has the choice to purchase inputs to raise yields to the full potential.

African farmers have suggested that they would like to grow their traditional foods (originally gathered from forests) as new cash crops. After 20 years R&D this is now happening (10,000 farmers in 400 villages) with very exciting livelihood and environmental impacts (see attached), which include the creation of new business and job opportunities for young people and especially women in post-harvest value-adding, and local / regional trade in traditional markets. I have published a highly adaptable, generic 3-step model which I believe to be applicable in semi-arid to humid-zone regions. I believe that up-scaling this approach could resolve the agricultural sustainablity crisis.

See also:

Leakey, R.R.B. 2014. Twelve Principles for Better Food and More Food from Mature Perennial Agroecosystems, In: Perennial Crops for Food Security, 282-306, Proceedings of FAO Expert Workshop, Rome, Italy, 28-30 August 2013, FAO. Rome.

Leakey, R.R.B. 2014. The role of trees in agroecology and sustainable agriculture in the tropics. Annual Review of Phytopathology 52: 113-133.

Leakey, R.R.B. 2014. An African solution to the problems of African agriculture, Nature & Faune 28 (2): 17-20.

Leakey, R.R.B. 2013. Addressing the causes of land degradation, food/nutritional insecurity and poverty: a new approach to agricultural intensification in the tropics and subtropics, UNCTAD Trade and Environment Review 2013 http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/UNCTAD%20%20-%20Addressing%20the%20causes%20of%20land%20degradation,%20food-nutritional%20insecurity%20and%20poverty.%20A%20new%20approach%20to%20agricultural%20intensification%20in%20the%20tropics.docx

21. Oluwatosin Kennedy, Oko University of Calabar, Nigeria

Good day,

I will be looking forward to participating in the consultation.

Crop and livestock integration will enhance sustainanble food security.

22. Said Zarouali, HCP MOROCCO, Morocco

L'élaboration du rapport traite l'agriculture durable constitue une opportunité importante pour évaluer les efforts fornis par les différents acteurs notamment les povoirs publics dans le domaine de la sécurité alimentaire à l'echelle locale, regionale et même globale.

L'agriculture durable y compris les ressources naturelles (les ressources halieutiques, les forêts, les parcours, les sols, les eaux, ...) doit traiter les attentes des populations, leurs besoins et comment les integrer dans le processus de preservation et de protection des ressources. L'objectif est d'assurer un exploitation optimale et durable des ces ressources pour les futures générations.

La présentation des pratiques réussies ou des études de cas, à l'échelle des pays ou des localités, constituent une valeur ajoutée exceptionnelle pour l'importance des 2 rapports.

L'évaluation des potentiels existants en produits alimentaires face aux besoins des population dans le présent ou dans l'avenir, permet de dégager les grandes orientations et pourquoi pas les Sénarios.

23. Danlami Moses Ogah, Nasarawa State University Keffi, Nigeria

For sustainable livestock development to meet for security, particularly in developing countries like ours, a strategic framework should be develop to characterize the production system, breed identification, and improvement programme to boost the indigenous resources.

a.Capacity building of stakeholder for proper understanding and implementation of this strategic plan must be incorperated

b. Development of animal breeding and feed strategy that will enhance sustainable animal improvement.

24. Josoa Randriamalala, DERAD, Madagascar

Bonjour à tous,

L'assurance de la sécurité alimentaire peut également se traduire par une augmentation des revenus des ménages. L'élevage peut contribuer significativement à cette augmentation des revenus et avec un minimum d'investissement. Le développement du secteur élevage, surtout en zone semi-aride, peut être un levier du développement et peut sortir des milliers de personnes de la pauvreté et de la malnutrition. Les rapports attachés à ce commentaire illustrent ce point de vue en prenant le cas des zones semi-arides du Sud-Ouest malagasy. http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Q925%20Rapp_Final.pdf

25. Gaouar Samir Bachir Souheil, Université de Tlemcen, Algeria

Bonjour, tous le monde

Bien sur que l'élevage peut être un élément important dans la sécurité alimentaire, la grande faute que font beaucoup de nos dirigeant surtout au niveau de mon pays en Afrique du nord c'est d'introduire des races a grand potentiel de production sans pour autant les inclure dans leurs contexte réelle de production initiale. L'idéale je pence serais tous d'abord une organisation concernant la distribution des espèce par endroits de vocation, par exemple le dromadaire au Sahara (sont milieu naturelle), Le bovin au Nord-Est de grand pâturage et pluviométrie importante...ensuit une distribution par vocation raciale, si je prend le mouton, pourquoi introduire la race Ouled-Djellel au niveau de la région Ouest alors qu'elle va non seulement dégradé le couvert végétal a cause de sont comportement lors de se nourrir en plus de cela elle ne va être aussi compétitif que la race Hamra qui elle elle est natif de cette région et "respecte" le couvert végétal. Troisièmement c'est vrais qu'il peut y avoir des races exotique qui on des potentiel zootechnique plus intéressante que celle des races locales, dans ce cas là pour quoi ne pas réalisé des croisement d'introgression en utilisant la technique des puces ADN, d'ailleurs c'est ce que j'ai proposé de réalisé avec la FAO sur le bovin locale par le biais d'un TCP (je n'est eu de nouvelles, cela fait deux années que j'essaye).

L'élevage comme arme stratégique c'est possible avec un peut d'organisation, du travail en équipe et surtout une assistance technique.

Cordialement,

Dr.HDR: Gaouar Samir Bachir Souheil

Maître de conférence à l'Université de Tlemcen, Algérie.

Maître de recherche (Chef d'équipe: Biodiversité, gestion et amélioration des ressources génétique) au niveau du laboratoire de génétique moléculaire et cellulaire, Faculté des Sciences, departement de biologie moléculaire et cellulaire. Université Mohamed Boudiaf USTO BP 1505 El Mnaouer, ORAN, ALGERIE.

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26. Delia Grace, International Livestock research Institute, Kenya

This initiative is timely and valuable. Some comments on scope.

1. Existing projections

Projections are a good departure point.

They should also include projected large increases in consumption of produce and processed food.

Many projections assume extrapolation from current trends but it is also important to explore trends under different scenarios (see Tilman & Clark, Nature 515: 518-522).

Projections should also look at changes in retail structure (especially the back-pedelling on 'supermarketisation') and of course broader shocks.

OECD is conducting a foresight exercise with "regional growth" "sustainability" and "globalisation" futures. This might also be a useful lens.

2.Implications

I would argue that implications for food safety should also be considered. Our work suggests foodborne disease currently cost around 40 million DALYs - a similar burden to lung cancer or TB. Unlike most infectious diseases, foodborne diseases tend to increase with development and urbanisation: witness the problems experienced in China. Vector-borne and water-associated diseases will be important in Africa where massive investment in irigation is anticipated in the next 50 years.

3. Sustainability

Part of the solution is in disease-proofing change. Our research in irrigated and non-irrigated areas confirms that irrigation changes disease profiles but also finds that clinics are not equipped to deal with this, continuing to diagnose malaria and typhoid even when our serology shows high levels of Q fever, West Nile virus and brucellosis. Irrigation with training of health personnel could avoid this.

It is important to also consider drug resistance and emergence of novel diseases, both of which are strongly linked to livestock intensification.

Important to consider aquaculture as well as livestock

27. Moises David Rojas Peña, Minsiterio Industria y Comercio, Dominican Republic

Sres.

HILPE

Reciban un sincero saludo de mi parte, a la vez permitanme presentarles una breve aportacion al tema que se esta llevando a cabo actualmente por su intitucion.

La seguridad alimentaria esta actualmente enfrentando serios problemas para su sustento a largo plazo si no se aplican programas serios dirigido a promover la agricultura especialmente la agricultura familliar, especialmente a los pequeños y medianos trabajadores del campos. Mi consepto es que se financie a los agricultores con recursos economicos blandos, asesoramiento agricola para mejoral la calidad de los productos tradicionales y para los productos nuevos que son

demandados por los mercados, semillas, insumos agricolas. Garantizandoles el mercados de colocacion de los mismo, ejemplo: las comunidades que estan pasando por escases de alimentos.

28. Aidan Connolly, Alltech Inc, Ireland

By 2050, there will be two billion more people living on the African continent and over 9 billion globally. GLIMPSETM, an acronym that was introduced in a paper we wrote for IFAMA in 2012 (http://ageconsearch.umn.edu/bitstream/142306/2/Connolly2.pdf) using a modified Delphi analysis based on interviews with two dozen agribusiness experts and independent researchers, identified the seven biggest obstacles to providing enough food to feeding the people who will be living on earth by 2050. The GLIMPSE acronym stands for Government, Losses (Wastage), Infrastructure, Markets, Politics&Policies, Science and the Environment.

The GLIMPSE framework places Agribusiness alongside governments, non-governmental organizations and charities as important players in addressing what Harvard calls a 'wicked' problem (a problem that cannot be solved using conventional thinking) that is how to feed the growing population, and identifies specific areas where agribusiness can make a difference.

Since then, the interest in the potential of African agribusiness has led to the Economist magazine coining the phrase 'Africa rising', referring to Africa's economic growth in general, the role of agribusiness in particular, and the importance of the increasingly urban population. The World Economic Forum also recognizes the importance of agriculture, noting that the ten countries which have invested 9-10% or more of their budgets in agriculture are on track to reduce extreme poverty by 50% by 2015 (Suzman 2014).

GLIMPSETM was driven by the recognition that the population of the world is due to increase by 50% in the next 30 years, from 6 billion to 9 billion people. Sub-Saharan Africa alone will account for 1/3 of that growth, as the population more than doubles from over billion in 2013 to at least 1.9 billion in 2050 (World Population Review 2014) and the region also has a very young population, with nearly half the population under the age of 25 in some states—a young population that will soon make up the world's largest work force. In 2013, six of the top 10 fastest-growing economies in the world were in Africa, including the No.1 and No. 2, South Sudan and Libya, with GDPs of more than 30% and 20%, respectively (http://www.imf.org/external/pubs/ft/reo/2014/afr/eng/sreo0414.pdf).

Overall, the continent has averaged GDP growth of 5% annually throughout the past decade, and that pace is expected to continue, with GDP projected to triple by 2030, and achieve a sevenfold increase by 2050 (International Monetary Fund 2014).

Moreover, Africa has ample land: along with South America, it is the continent with the most potential for the development of new agricultural land and (outside the Sahara Desert) much of the continent has ample water resources. Thus, it has the potential to produce not just enough food to meet the needs of its own population, but to help meet the demands of the global population.

The United Nations' Economic Commission on Africa says that 'scaling up agribusiness should be Africa's next growth frontier.' (http://www.iol.co.za/business/news/scaling-up-agribusiness-should-be-afr...). The question is, can Africa achieve its own version of the Brazilian "miracle of the cerrados"? And if so, what steps are needed?

Despite The Economist's optimistic headline 'Africa Rising: The Hopeful Continent' the obstacles identified under the GLIMPSE™ model account for much of the failure of food production and farm prices to keep up with the overall growth rate in the continent's economies.

The continent needs not just growth but transformation: much of the economic growth has come from extractive industries, rather than building a business environment that adds value. As a result, growth has failed to produce jobs and in turn a strong middle class has been slow to develop. Agribusiness can help effect that transformation.

It will take change on the part of virtually every constituent in the food chain—governments, nongovernmental organizations (NGOs), farmers, agribusiness and consumers—to successfully solve this wicked problem. It will also take cooperation, among these constituent groups, but it can be done.

Nearly three-quarters of the population of Africa rely on agriculture for their livelihoods (UNdata.org), and agribusiness and agro-industries account for more than 30% of national incomes, as well as the bulk of export revenues. Yet, "agribusiness" is often seen as being part of the problem, pursuing short-term gains at the expense of human development and the environment. NGOs in particular often see the interests of agribusiness as being in direct conflict with the interests of the population. For example, Greenpeace has argued that sustainable agriculture can deliver food for 9 billion people- if governments will listen to people, not agribusinesses (Oram 2012). We take a different perspective: that market-driven, private-sector solutions can not only complement the efforts of governments and NGOs, but also play an essential role in meeting the challenge.

Some of the GLIMPSE™ factors are equally intractable for governments, NGOs / charities and agribusiness, such as volatile weather (including climate change) and changing eating habits. Others, such as political or economic instability, require government action. Some challenges pose issues for which agribusiness can play a limited, but important role (such as regulations, resources, and infrastructure). However, there are some challenges for which agribusiness is actually the best hope for progress, most notably in supply chain management, markets and innovation.

29. Ali Elkhalil, Sudan

1- The role of fish & aquaculture could be considered either separately or with livestock.

2- availability of water is an important threat to the sustainability of all agric. sytems therefore it should taken into consideration also.

3- The abovmentioned points (fish & water) are covered separately by HLPE studies

30. Abubacker Siddick Syed Mohamed, M.S.Swaminathan Research Foundation, India

Sustainable agricultural development for food security and nutrition including the role of livestock in the Indian context, especially with more than 70% small holder farmers, is a major challenge posed before the agricultural scientists and nutritionists at present in the country. Several research interventions were carried out in major agro bio-diversity hotspots in India to alleviate poverty and malnutrition and to find an integrated solution for sustainable development among these small holders. Successful models involving five themes 1.Enhancing farm productivity 2. Promoting Nutrition rich local plants and animal foods 3. Facilitating On and Off farm enterprises 4. Need based training and capacity building 5. Knowledge development and dissemination using BCC and ICT tools.

31. Asrat Amejo, Ethiopia

Currently there is a massive movement to ground sustainability in agricultural development, food security, well-being and environment. In this demission therefore it is very important to integrate

agricultural system (crop-livestock and tree system) for the small-scale farmers. It can increase the opportunity for research and development accesses. The interwoven view for research and development work further enhance market opportunity and access as well as technological generation, innovation and adoption. It can also liquidate and/or dismantle unwise competition for resource utilization and allocation but reorganize the united effort with common sense and goal for the development alternatives of agricultural sector for human well-being particularly the poor. It can address efficiency and sustainability on resources and asset allocation as well as increase viability and sustainability in household income, food security and poverty reduction.

Thousands or millions of households in developing country now a day not only food or nutritional insecure but they are insecure for incomes as well to send their children to school, college or university, to get medical treatment during illness and to have better dwelling house. But agriculture (livestock, crop and tree production) has better orientation and contribution since times to come. Now then ever before, it needs more integration and intervention in more inclusive ways over all regions of all the poor.

32. Norbert Tchouaffe, Institute Sultan Iskandar, Malaysia

Future Sustainability – the Role of livestock in the Sustainable Development Goals

2015 is the year when sustainability is at the forefront of international attention – with a series of major new initiatives on agriculture, climate change, and sustainable development goals. Each one of these signal transformative changes in policy, action, and research.

Knowledge, evidence, and science will play central roles in each of these arenas.

What new knowledge is needed? What is the role of livestock and researchers in these processes? How should knowledge be produced to inform, support, and guide them?

There is now a broad appreciation that the production of socially-robust knowledge requires new forms of engagement between science, the community that undertakes it, and society.

Science itself is being transformed by new expectations from arenas, like the SDGs, for new ways of connecting and communicating what we know to what we do.

The SDGs are set to begin in 2016 with a timeline to 2030, and achieving the targets laid out requires the best available evidence-base from both the natural and social sciences. The research community is charged with making key global sustainability targets measurable, quantifiable, and evidence-based.

Integrated targets for sustainability require integrated science that cuts across disciplinary boundaries to bring together the various dimensions of sustainability. How science and the changing role of the scientist fits into global targets and goals on sustainability is an important issue. Let's narrow our scope to the livestock.

Which role can livestock play for SDGs?

Depending on the objectives stated by FAO, livestock can play a pivotal role in integrated agricultural system, particularly in eco-friendly farming, where livestock is the principal contributor of manure.

The role of livestock is more broadly in food security

Referring to food security and nutrition, evidence from parts of the Sahel shows that households with livestock often were less vulnerable to severe food insecurity than strictly crop-based systems in the Sahel, because the farmer could sell off livestock to buy cereals during extreme weather events.

In Kenya for example, there have been several advances in technologies for milk storage, processing and storage of animal products (yogurts, ghee, dried meats etc) that improve nutritional impacts especially for children (e.g., The BMGF-funded East Africa Smallholder Dairy Program).

Need for engagement in livestock for the sustainable development

The increased attention to 'engagement' in sustainable development has resulted in a greater focus on holistic approach to address the high demand for food in long term basis while protecting our environment. To achieve this, the livestock as other sectors are important resources for the sustainable development goals (SDGs). Positioning the Livestock in such roles is consistent with calls for treating all agriculture sectors as ingredients capable of participating in changing and improving the agricultural system as the whole. The precondition of the sustainable livestock in particular and the agriculture general is many folds and needs multi-sectoral approaches, engagement of youth, farmers with local know-how and researchers as well; it is why some environmental education researchers emphasize not only the intellectual engagement of people in socio-agro-ecological issues, but also their emotional engagement. In this regards, I do share the perception of (Fajersson, 2014) who wrote :" We need to re-create a great interest in our young and older students and faculty in international animal agriculture in order to feed the future, shake them up a bit to realize that although today we can do so much over the internet, by mobile phone and modeling etc., there is now more than ever opportunities to go out there and contribute to feeding the world". In the same direction (Dash, 2014) in UN Africa Renewal, declared: " Micro and small enterprises can really bring big change in agricultural and other sectors. What is needed is mentoring and EDP training programme for the youth to identify business opportunities in particular area and translate these resources into small business by the Government".

To Build–up a sustainable livestock, appropriate research methodologies and methods are needed urgently; these require these require research, training, information, extension services, capacity building, farmer empowerment and related infrastructure.

To sum-up my contribution, I do think the sustainable livestock needs an holistic approach in order to:

- support the development of relevant sector policy and strategy, regulatory and institutional arrangements;
- enhance the delivery of livestock inputs and services to livestock farmers; improving marketing infrastructure and marketing systems for livestock and livestock products; strengthening the capacity of livestock farming communities and the private sector; and strengthening private and public institutions to provide services to the livestock sector;
- contribute towards increasing income, food and nutrition security amongst those involved in livestock farming through increasing livestock productivity;
- promote changes in cultural and behavioural attitudes to ensure that livestock assets contribute positively to household nutritional security;
- improve the capacity of national animal health services to plan, implement, monitor and evaluate the strategic control of epizootic diseases;
- promote the growth and deployment of public and private animal health service providers, livestock Development Support Services;
- strengthen community-based animal health services;

- Promote and implement rangeland regeneration and sustainable grazing management practices Investment in addressing the issues of the lack of water availability in these areas (development/rehabilitation of water points, small scale irrigation, protection of natural water sources).

In conclusion building New Alliance around the world could be a sustainable way to share know-how and commitment to achieve sustained and inclusive agricultural growth for the SDGs.

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33. Jérémie Pacôme Kouassi, Côte d'Ivoire

Bonjour à tous

Je comprends que la majeure partie des études sont fondées sur la productivité et la qualité de cette productivité. Lélévage n'est pas en reste de cette étude. Mais la réalité en Afrique est très différente du reste du monde. D'abord, nous sommes confrontés au capital humain qualifié dans le domaine, ce qui pose le problème de gestion des espaces entre éléveur et agriculteur. Ensuite, les agriculteurs et les éléveurs en particulier ont des difficultés de transformer leur dotation capital (têtes d'animaux) en flux financier sur les périodes où ils ont plus besoin. Par exemple, pendant les entrées scolaires qui ne coïncident pas avec les fêtes de Tabaski. Enfin, l'absence du système financier dans le développement de l'agriculture. Bien qu'il y a beaucoup de financement dans le secteur de l'agriculture par les partenaires financiers mais le cibles n'est pas atteint dans la majeure des cas. C'est pourquoi, je propose quelques solutions pour impacter un peu ces trois axes:

1/ Privilégions les actions de pérénisations des revenus des agriculteurs et les éléveurs en particulier. L'action consiste à capitaliser les récettes générées dans un institution financière pendant la phase de la forte demande du produit et de lisser par revenu mensuel à l'agriculteur sur l'année. Cette méthode permet à l'agriculteur de se comporter comme un salarier et de ne pas sentir des phases d'absence de vente. La méthode s'adapte à chaque secteur de l'agriculture selon sa spécificité.

2/ Au lieu de financer les actions pour l'augmentation de la productivité dans l'agriculture, les partenaires devraient financer les coûts des titres de propriété dans les différents villages de l'Afrique. Car tous les comités villageoises connaissent les propriétaires de tous les espaces dans chaque village. Mais le problème est que les villageois n'ont pas les moyens pour financer les documents administratifs pour disposer des titres fonciers gages d'un développement durable.

3/ Le défaut de capital humain qualifié dans le secteur devrait être palié par l'apport des institutions financiers. Parce que les systèmes financiers accompagnent toujours l'économie d'un pays et non le contraire. Partant de fait, ils devraient créer des produits qui prennent en compte la spécifité de l'agriculture. Par exemple, Mettre en place un système qui capte tous les revenus des personnes du secteur pendant les phases des fortes ventes. Le système financier procède à un reversement mensuel au agriculteur et prélever une partie pour financer la couverture sociale de ces personnes.

Voilà ma vision d'une bonne contribution de l'agriculture et l'élévage en particulier.

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Certifié Sécurité Réseau et Denfense Proactive en Inde (Mohali)

34. Ntakirutimana Léonard, CIPER, Burundi

Je suis coordinateur Principal du CIPER (centre d'initiatives et de perspectives economiques dans la region des grands lacs africains). Je suis Ingenieur agronome et spécialiste en intelligence territoriale.

Le developpement durable de l'agriculture et de l'elevage est très important pour le developpement du monde et de l'Afrfique en particulier où l'agriculture fammiliale ou de subsistance bat son plein.

Pour arriver à cet fin, il doit y avoir un lien antre les acteurs agriculteurs et les eleveurs. Ce lien est basé sur la complementalité de ces deux secteurs (fumier-aliment du betail par exemple).

Au Burundi, la plupart des exploitations ont une taille 1/2 hectaires et la vie est presque impossible. Plus de projets utilisent la chaine de solidarité communautaire des menages pour agmenter le cheptel: PRODEMA, FAO, PARSE, etc.

Un programme national agricole est adopté par le gouvernement afin d'aider les agriculteur à faire des cooperatives.

Notre association CIPER encadre une cooperative KAZOZA de Giteranyi et fait des formations Au CAM de MUTWENZI. cela dans le but de lutter contre la pauvreté dans la région Nord du Burundi et arriver à la securité alimentaire et nutrutionnellle.

On pratique les cultures maraichères dans les marais, leur commercialisation et la recharche des marché pour les produits maraichères.

L'agriculture et l'élevage durable pourront se faire au moyen de deux programmes: l'application de NTIC dans le reseautage des acteurs agriculteurs et les eleveurs à tous les échelons; promotion des mouvements cooperatifs rassemblant les agriculteurs et les eleveurs (fumier - aliment dubetail). l'intratnet des intervenants, l'info-communication active et interactive est importante entre ces acteurs. cela pourrant facilieter le financement de ces deux secteurs complementaires

35. Jacques Loyat, AVSF Agronomes et vétérinaires sans frontières , France

L'importance de l'élevage

Dans le monde, 600 millions de personnes, parmi les plus pauvres, font de l'élevage leur principale ressource.

Dans les pays les moins avancés en termes de développement, l'élevage joue un rôle crucial dans la survie des familles paysannes. Il facilite notamment le passage des périodes sans récoltes (autoconsommation, source de financement pour acheter d'autres aliments). Les œufs, le lait et la viande constituent un apport nutritionnel protéique de qualité, en particulier pour les femmes enceintes et les enfants.

Par la traction (labour, transport, ...) et la fertilisation des sols avec leur fumier, les bovins, chevaux et chameaux assument une fonction déterminante dans les exploitations agropastorales.

Pour les revenus, le petit élevage (volailles, petits ruminants, porcins,…) représente une source de liquidités facilement mobilisable, surtout pour les femmes. Les « gros animaux » constituent une forme de capitalisation, comme au Sahel où ils permettent la valorisation des zones enclavées et la survie des populations pastorales qui y vivent.

Sécuriser les élevages paysans

Sécuriser les élevages paysans est un enjeu fort, nécessitant d'aider les éleveurs à maitriser leurs principales contraintes, au premier rang desquelles les contraintes zootechniques (disponibilité alimentaire, reproduction, amélioration de l'habitat, ...) et la santé des animaux.

D'un point de vue environnemental, les animaux jouent, pour les petits éleveurs, un rôle fondamental car ils entretiennent les pâturages, valorisent les résidus de récoltes pour leur alimentation et restituent au sol leur fertilité naturelle avec leurs déjections : en phase avec une approche agroécologique, ils participent ainsi au maintien de la fertilité des cycles naturels. Quant aux émissions de gaz à effet de serre, les élevages paysans sont les moins émetteurs car l'utilisation d'intrants, d'énergies fossiles, de fertilisants pour produire les fourrages est beaucoup moindre que pour les élevages industriels.

L'agroécologie dans l'élevage

Comment concilier l'agroécologie, qui prévoit un recours minimal aux intrants de nature chimique, avec des modes d'élevage qui nécessitent souvent des produits de synthèse (antibiotiques, antiparasitaires, vitamines…) ?

Est-il possible d'améliorer la santé et la productivité des élevages familiaux, de protéger la santé publique avec une approche plus écologique ?

La réponse peut être trouvée à travers les pratiques traditionnelles vétérinaires. Rechercher des alternatives à la médecine occidentale dans les pays en développement est recommandable, car les médicaments vétérinaires y sont souvent difficiles d'accès et de qualité parfois douteuse. Une autre voie pour réduire les interventions de nature chimique est la récupération et la diffusion d'espèces et de races animales mieux adaptées aux conditions d'élevage (climat, disponibilité d'aliments et d'eau) et nécessitant moins de soins.

L'élevage paysan s'imbibe du respect du vivant, il maintient des tailles d'exploitation raisonnables et une solidarité tacite entre homme et animal, qui n'est pas vu seulement en termes productivistes. Les éleveurs et les paysans du Monde ont beaucoup de choses à nous apprendre.

Jacques Loyat, *Administrateur AVSF*

AVSF Agronomes et vétérinaires sans frontières

www.avsf.org

36. Laura Higham, FAI farms Ltd, United Kingdom

Thank you for the opportunity to contribute to the scope of this important report. I believe the proposed structure provides a comprehensive framework for the role of livestock in sustainable development and food security, but I would like to make the following suggestions:

- Use of the '3Es' sustainability framework to encompass Economics, Environment and Ethics (including social dimensions, worker welfare and animal welfare). (http://www.faifarms.com/)

-One omission in the scope is any reference to animal welfare, which is a very pertinent discussion in any report on sustainable development of livestock that inevitably discusses sustainable intensification with inplications for animal health and welfare. (section 2c?)

- Discussion of One Health and zoonoses, which may be incorportated in to 2a, including the emergence of antimicrobial resistance in livestock and zoonotic transmission via the food chain.

Thank you for opening this consultation and I would welcome any further opportunities to be involved in this forum.

Kind regards,

Laura Higham BVM&S MRCVS

FAI (Food Animal Initiative)

37. Ahmed E Sidahmed, FAO, Italy

A) Context: The traditional way of setting the scene has always been of establishing knowledge of supply (sustainability, NRM, coping with/ adapting to CC and other environmental shocks etc) and demand (growing need for ASFs, change in consumption habits, and some understanding of the cultural values that influence what people eat). This is fine. But it does not take us all the way. An important entry point is waste and loss of ASFs. In poorer countries waste and loss are driven by poor means of production and transport to fattening and slaughter houses, poor hygiene, high mortality rates, etc. In the richer more affluent loss is cultural (scare of bugs by a majority who do not know what bugs are). But in spite of that the culture of expiry-date have never succeeded in making the people in the affluent countries healthier (if not sick of bacteria caused diseases they are sick of overeating) and safer than otherwise. I once read that mortality and falling sick because of contaminated foods is really high in UK. Imagine! Indeed there should be good understanding of the drivers of economic growth specially noting that most of the livestock is produced by the poor subsistence level rural households.

B) Achieving sustainability for food security and nutrition: A rigorous assessment of the challenges, objectives and pathways (bullets 3, 4 and 5) in the report is necessary and there is abundance of expert knowledge, practices, models and examples from everywhere. At the end where this assessment is expected to take us? Which specific direction is targeted? Which "Worlds" to consider: the ideal, the uncertain or the real? What would be the extent of identifying barriers to change? In a nut shell the report must be unique in its ability to provide solutions. Times of looking at livestock from the pro and con views is over. The challenge is in how to make safe and nourishing ASFs available to a growing population without the traditional challenges of overeating and hunger?

38. Stamatis I. Kythreotis, Greece

According to FAO projections for food production in 2015 will be 60% higher than the levels in 2005/07. From the other site population could increase by 2050 more than 2 bilion people from 2012 levels reaching 9.15 billion in 2050.

Althought growth has been achieved during the last years in the food production a critical problem is the under-nutrition in several regions such as Sub-Saharan Africa.

This means that the two parameters that have to be taken into account in the analysis of the Report are:

1) Food production growth,

2) Population growth.

for the following trends:

a) food security and nutrition;

b) access to land and natural resources;

c) agricultural production and productivity increases;

d) economic development;

e) the healt of the environment and ecosystems, including climate chage and biodiversity.

Projections in the Report should be based to the historical numbers of the two up stated parameters and to be analysed accordingly. This analysis will provide the assurance that the outcome and conclusions of the Report will be of high quality and accurate.

Stamatis I. Kythreotis—

39. Dinesh Kaippilly, Kerala University of Fisheries and Ocean Studies (KUFOS), India

Collecting droplets and trying to make an ocean of updated knowledge and increased awareness for planning a agri-based food sufficient world by FAO is a welcome step. Contributing towards it even with visibly and tangibly insignificant information is interesting. First of all, my expertise limits to aquaculture and allied sectors which really restricts the scope for a much elaborated intervention and suggestions. Still belive that aquafarming can play a major role in national food security especially in terms of protein and micro nutrients. India has a total fish production of 9 million tonnes annually with a contribution of more than 55% from aquaculture. Carp culture in an extensive mode still remains as the mainstay of Indian aquaculture. Basa culture has been picking up since 4-5 years and the total production is to the tune of 0.2 million tonnes positoned at second position after Vietnam. The problem with the basa produced by india is the yellowish colour of the meat which

makes it internationally less acceptable. The use of low quality farm made feeds is considered as the reason for such a colour change. Culture of L. vannamei also picked up recently contributing significantly to the over all annual export figure of more that 5.5 billion US$. The major issue faced by the Indian aquaculture is the inertia to take up species diversification. While other Asian countries go for the culture of more number of species for the sake of keeping away diseases, better area utilization, better price relaization etc. India still continues the tradional species with extensive mode of farming. The captive breeding of much sought after species like Milk fish, Mugic cephalus etc. is yet to be standardized in India. With the vast aquatic resources India can do wonders for feeding the population of India which is touching 1.3 billion. So opening the doors for getting technological advancements in seed production, feed manufacture, resource utlization etc. may help the country for becoming self sufficient in protein. While discussing the nutritional security, another important point is the Indian inhibition to go for diversified food habits. Most of the Indians are found to take monotonous food items which might be contributing to their nutrient deficiency. If ladies are made aware to utilize the all avialble food sources, that may also help to improve the health status. More concerted efforts are required to accumulate these information for a better compilation towards formulating a strategy for the future. Thease are my personal views only.

40. Robyn Alders, Brigitte Bagnol, Richard Kock and Jonathan Rushton, CPC Global Food and Nutrition Project Node, University of Sydney, Australia

Contribution by Robyn Alders, Brigitte Bagnol, Richard Kock and Jonathan Rushton

CPC Global Food and Nutrition Project Node, University of Sydney

Thanks very much for the opportunity to comment on the scope of the study on Sustainable agricultural development for food security and nutrition, including the role of livestock. The draft scope provides an excellent framework on which to base the study. We hope that the following comments will help to refine it.

Part A: Context: drivers and challenges

One challenge that is that many decision and policy makers, as well as consumers, have an inadequate understanding of human nutritional requirements and how they vary by social-environmental context, age, gender, reproductive and immune status. In addition, scientists, including nutritionists, have struggled to keep pace with the way food is processed and presented to consumers.

Cultural issues concerning perceptions as to what can be classified as food has tended to reduce the range of food stuffs eaten and reduce the efficient utilization of animal carcasses in many “western” countries – there has been a general commoditization of food and processes to produce food. Livestock systems are increasingly homogenized through a process of controlled breeding and controlled environments.

In addition to meat, milk and eggs, various organs including liver, kidney and bone marrow are a rich source of vital micronutrients but have largely disappeared from “western” dining tables. Culturally acceptable food of animal origin has also been strongly associated with domestically raised livestock (e.g. ruminants, monogastrics, camelids and fish) with insufficient attention given to the sustainable harvest of wild animals and insects. This is especially true in environments better suited to harvesting rather than intensive production systems. Examples abound in marine, terrestrial drylands (wild rangelands) and tropical and subtropical ecosystems but less so in temperate systems where the dominant agricultural paradigms have emerged from. These systems are currently in

development/replication in many other biomes based on apparently successful temperate-based models.

It may be useful to analyze the interconnection between local knowledge and nutrition versus the distribution of poor quality food (local crops/refined wheat, maize and rice; subsistence crops/cash crops; extensively produced meat/intensively produced meat, etc.), increased production intensification and the propagation of western style diets high in refined sugars, fats and processed grains.

Changes in the nutritional and safety status of food pre and post harvest or pre and post slaughter is an important consideration. In relation to food of animal origin, inadequate cold storage facilities in many locations are partially responsible for the continued existence of live animal markets in urban settings. This is another example of the correlation between human wellbeing and animal welfare.

Part B: Achieving sustainable agricultural development for food security and nutrition

Sustainable agricultural development is closely linked to the maintenance of ecosystems services. Long term sustainability requires agroecological systems that maintain or enhance soil and water security, carbon and energy cycles and biodiversity. The Bioversity "nutrition-sensitive landscape" concept is likely to facilitate this process.

Efficiently improving understanding of human nutritional requirements will require engagement with multiple stakeholders, including the education sector, the food marketing industry and systems thinkers such as anthropologists, ecologists and value chain specialists in addition to human and animal health and natural resource specialists.

The draft scope rightly recognizes the importance of gender equity issues in relation to food and nutrition security. It would be ideal if the vicious cycle involving women's lack of access to resources leading to poverty, poor health and malnutrition, where malnourished young girls give birth to malnourished children who will live unhealthy lives with limited physical and intellectual capacities could be addressed.

41. Ismaelline Eba Nguema, Université Mohammed V- Rabat/ Maroc, Morocco

Depuis la crise alimentaire de 2007-2008, la sécurité alimentaire est revenue à l'ordre du jour des organisations internationales et des gouvernements. Malgré des réalisations concrètes, les maux à l'origine de l'insécurité alimentaire demeurent profonds, les initiatives tardent à se concrétiser et parfois lorsqu'elles le font, elles vont à l'encontre de la sécurité alimentaire.

Sans s'établir sur tous les promesses qui tardent à se concrétiser à l'instar de la mise en oeuvre de la déclaration de l'Aquila... Il y a un point qui parait un peu plus important que le reste et qui touche sans doute beaucoup plus à la durabilité, à savoir : la décision de renforcer les investissements agricoles. Cette inititative a été l'un des points centraux sur lesquels de nombreux instruments interntaionaux ont insisté. De la déclaration du sommet mondial sur la sécurité alimentaire de 2009 (qui n'a fait que reprendre ce qui avait été recommandé aux pays et organisations interntaionales à en 1996) à la conférence internationale sur la nutrition de 2014.

Cette situation à conduit à l'accroissement des investissements privés encouragés par la banque Mondiale, avec une dose d'intervention étatique. Le but à l'origine est de créeer un partenariat gaganant- gagnant entre l'Etat et les firmes multinationales. Mais comment faire converger les activités des géants de l'agrobiness avec ceux du développement durable? Pour ce faire, nombreux sont les firmes, (hormis les Etats) qui ont achété des terres dans les pays les plus pauvres, souvent en situation d'insécurité alimentaire (avec un niveau de vulnéralité élevé).

cette situation s'est materialisée par l'essor continuel des cultures de rentes (après tout ce sont elles qui génèrent des devises), par l'expropriation des terres agricoles autrefois propriété de petits paysans locaux tout ça au nom de la sécurité alimentaire. La révolution verte l'a emporté sur le développement durable de l'agriculture.

Le Gabon fait partie de ses pays qui a mis en oeuvre des politiques qui vont à l'encontre d'une stratégie de sécurité alimentaire durable. Dans le Nord du pays à Bitam, les terres les plus fertiles autrefois réservées à l'agriculture vivrière et à l'autoconsommation ont été retirées aux paysans, afin d'être non seulement remise aux FMNs de l'agroalimentaire, mais aussi d'être consacrées aux cultures de rentes au grand dam des populations en place, qui sont aujourdhui devenues de simples ouvriers agricoles payés à des salaires très bas.

Cette situation à non seulement occassionné une paupérisation croissante de la population rurale Bitamoise mais aussi un changement d'habitude alimentaire, qui conjugué avec un faible niveau de revenu, des marchés instables (...) sont susceptibles de crééer des poches d'insécurité alimentaire sur le territoire national.

42. Ghulam Bilal, Pakistan

We need to go the base (the point where we started) and carefully evaluate the whole chain of development events to see where we went wrong.

An obvious difference between true "need" and "desire" may be kept in mind. A need in our perspective is say "provision of safe and healthy food to everyone living on the face of earth". Once this true need is fully addressed in its entirety, the next phase of development could to fulfill desires of few satiated people. Both directions need consideration but I would suggest work for the need (90% of the times) and leave the rest for fulfilling desires. In reality, need of many is compromised at the cost of desires of few people. Few people own most land with agriculture and livetsock and they are the ones who have almost all needs and many desires fulfilled.....

43. Alain Abi Rizk, Holy Spirit University of Kaslik, Lebanon

In below, you can find some ideas we already proposed for GCHERA 2015 “Global Confederation of Higher Education Associations for Agriculture and Life Sciences” next conference.

This info fits with the Proposed Scope of the HLPE Report and can give some ideas in order to elaborate the draft.

“Feeding 9 billion people by 2050 will need an increase of food production by 50%. So satisfying the food security needs of the future population while having a smaller environmental footprint are key goals of our societies.

These goals seem somehow to be inconsistent in practice due to agriculture’s footprint such like carbon, energy, water and chemicals use...These footprints have already caused the loss of whole ecosystems around the globe.

Therefore, these goals are turning into challenges especially with climate change and shortage that are likely to fundamentally alter the structure of food systems around the world leading to more negative environmental impacts. So in order to increase productivity and yield, advanced research and technologies are needed.

Many questions need to be answered in the future HLPE Report:

1- What are the keys to improving livestock productivity with no net increase in water and energy use, waste disposal and chemical inputs? How can we overcome the odds between production and environmental protection?

2- What are the possible ways to develop environmental management throughout the life cycle of main food products? Can the "100-mile diet" movement in Europe be applied on a global level?

3- What mix of agricultural systems is needed to meet expected future demand for food? How can we design systems that can handle climate change, and pathogens and/or pest pressures?

4- Can a shift in diets, decreasing the demand for livestock-based products, free up substantial amounts of food across the world?

5- What policies can make our food system more sustainable? What kind of measures can governments promote and support to private-sector agricultural development, entrepreneurship, and the formation of public-private partnerships?"

44. Befekadu Wakayo, Ethiopia

It could be a good spring board to start with analysis of past cases of success and failiure particlarly regarding livestock development. Past trends of growing demand for animal products incentivized livestock devlopment in latin American and south east Asian countries. Meanwhile, such success was far from realized in sub Sharan Africa.

My suggestion in this is for stronger focus to distinct local policy and capacity challenges. These factors represent major impediments particularly to livestock development in sub Saharan Africa. Such lmitations hinder optimum exploitation of rising opportunities and limmit capacity to effectively deal with prevailing challenges.

45. Gerhard Flachowsky, Institute of Animal Nutrition, Germany

More feed and food for More people with Less resources and less emissions are real challenges for sustainable food security and nutrition presently and in future. Plant breeding can be considered as the starting point for the whole human food chain. Therefore, high, stable and high digestible yields of phytogenic biomass with low external inputs of non-renewable resources, such as water, fuel, arable land, fertilizers etc., low emissions of gases with greenhouse potential during cultivation, high resistance against biotic and abiotic stressors including adaptation to potential climate change, and a low concentration of undesirable substances in the plants are real challenges for plant breeders in the future. Unlimited resources such as sunlight, nitrogen and carbon dioxide from the air as well as the genetic pool of microbes, plants and animals can be used to breed/develop the optimal plants/crops (see SCAR 2008; The Royal Society 2009). It is possible to realize all these objectives by traditional plant breeding, but genetic engineering may be faster and can contribute substantially to achieve these goals. Both "breeding technologies" should be considered to complement one to another and not as alternatives.

Another global aspect is the balance between Planet (global resources and emissions) – People (social aspects of population all over the world) and Profit (economic aspects, money-making) in the so-called 3P-concept (IUCN 2005; Boonen et al., 2012), This balance is an important prerequisite for a sustainable life and development on the earth. Some authors are afraid that the balance between the 3P would be more and more disturbed and an ethical dimension should be introduced as the fourth dimension (IUCN 2005; Casabona et al. 2010; Makkar and Ankers, 2014). Profit should not and can not be the single objective of production. We need to find a balance between a careful and

sustainable use of limited resources (see above) on the one hand (Fedoroff et al., 2010; Giovannucci et al., 2012; Wals and Corcoran 2012) and low emissions with local and global consequences for later generations (Foley et al., 2011) on the other hand. Progresses in plant breeding to more efficient plants in using natural resources and plants with high and stable yields which contribute to stabilize human nutrition with food of plant and animal origin can be a starting to overcome imbalances in the 3P-concept.

That means plant breeders should consider this 3P-concept and should develop plants with low external inputs of non-renewable resources (e.g. water, fuel, arable land etc.) and plants should optimal use unlimited resources (e.g. sunlight, N2 and CO2 from the air etc.; see Flachowsky et al. 2013).

Public plant breeding is very important to realize such objectives. Seeds of such breeding should be available to all farmers including smallholders in developing countries (see Ruane et al. 2013).

If we are not able to consider such aspects as mentioned above in the HLPE-report, we will not be able to contribute to a sustainable solution of food security and nutrition.

Personally, I think that the authors of the HLPE-report on "Sustainable agricultural development for food security and nutrition, including the role of livestock" should consider such fundamental aspects.

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46. Margherita Gomarasca, Vétérinaires Sans Frontières International, Belgium

Vétérinaire Sans Frontières International is a network of 11 NGOs working all over the world in the fields of livestock, animal health and welfare, and agricultural production, to support small scale farmers and pastoralists.

We welcome the effort to give to livestock, agroecology and mixed farming an important place in this study. And we would be glad to provide inputs and data based on our extended field experience.

VSF International is committed to promote small-scale (livestock) farming and pastoral systems based on an agroecology approach. In these systems livestock is part of an integrated system and holds several functions, including food supply, a source of income, traction, manure, social capital, financial assets, and a mean of recycling crop wastes.

In our view Small Scale Livestock Farming (SSLF), a production system that presents a structural link between economic activity and family structure, and which is deeply connected whit its surrounding environment and community, is at the core of sustainable food systems.

SSLF systems provide jobs while assuring a more equitable income distribution. They strengthen local economies, improve livelihoods and quality of life for poor rural households, and they have positive, sustainable effects on the environment, adopting a full range of adaptation strategies and guaranteeing conservation of biodiversity (including local animal breeds). Social aspects are also at the core of SSLF, which recognizes the central role of local farmer knowledge and the importance of inter- generational relationships for its transmission. Furthermore, small-scale livestock farming and mobility through pastoralism, can offer solutions to the threats caused by climate change by generating a low carbon footprint (less emissions along the whole food chain; higher carbon sequestration through natural pastures management), by improving resilience to climate variability and contributing to food security of the most vulnerable populations.

Globally, 75% of the people suffering from hunger are small farmers and inhabitants of rural areas. A large portion of these depend on a few courtyard animals for daily food provision. Therefore, no successful program against hunger can ignore the urgent need to support small household farming activities, as well as SSLF systems.

Among the different elements of sustainable agriculture and food systems that will be taken into account in the HLPE report, we would like to highlight the conservation of local genetic resources (local seeds and local breeds), which are the result of centuries of selection and adaptation to local conditions. Local breeds are typically smaller than breeds genetically selected for mono production, but they are multipurpose. They are usually more resistant to local diseases, food and water

shortages, and extreme weather conditions. These characteristics translate into less need for veterinary care and a better preservation of the ecosystem diversity.

47. The Brooke, United Kingdom

The HLPE study on Sustainable agricultural development for food security and nutrition, including the role of livestock should take into account the roles and contributions to food security of both production and non-production livestock, namely working (transport and traction) animals.

Food security and livestock policy debates conventionally focus solely on production animals (be they food or fibre producing animals). This is based on the erroneous assumption that livestock that does not produce food or fibre outputs such as meat, wool or milk does not carry a quantifiable monetary or nutritional value with regard to people's food security or livelihoods. Consequently, the bulk of available evidence on the economic contributions of livestock and its role in food security tends to be limited to these production roles, with only a small number of studies focusing specifically on traction for crop production, and almost no attention being paid to the multitude of other economic benefits that hundreds of millions of people in developing countries derive from their working animals. Non-food production animals are therefore invisible in the livelihoods and food security debates.

This is an important oversight, given that working (transport and traction) animals such as donkeys, horses and mules are a critical livestock asset for hundreds of millions of individuals and communities in developing countries, playing a vital role in ensuring access to food, as well as being a key element of the food production value chain. The latter encompasses the support role played by working animals in livestock production (by transporting feed and water for other livestock) as well their role in what is called "the missing mile". The "missing mile" is a term used to refer to the first mile between small scale dairy facilities for example and the nearest road from which the milk (or other produce) is collected. Working donkeys, horses and mules are commonly used in some developing countries to carry such produce across this 'mile' often over rough terrain, to ensure that it is collected and transported onwards.

Recent research shows that they provide invaluable support to women in developing countries, enabling them to earn an income, offering relief from the drudgery of household chores, securing access to food and education for children, transporting feed and water for food producing livestock, as well as transporting produce such as milk to market (Valette, 2014). In addition, a number of studies including HEA studies carried out by The Brooke in India, Pakistan and Kenya have provided evidence the significant contribution of working animals such as donkeys, horses and mules to people's livelihoods and food security.

Examples of the role of working animals in sustaining livelihoods and ensuring food security include:

- Income generation (be it direct from activities such as transport for a fee, carting, pack and agricultural work or indirect from the transport of homemade goods and produce to markets and transport of farm inputs)
- Buffering (as an investment for households when income is available or production exceeds consumption)
- Saving (working animals provide regular cash, allowing households to save and build financial safety nets, as well as contributing to community credit schemes)

- Insurance (working animals such as donkeys are highly resilient and can be valuable assets in case of natural shocks, for example by carrying water during droughts or moving entire families and their belongings when homes are lost)
- Social benefits (working animals help their owners and users build stronger community links through borrowing, provision of services such as ambulance and school transport and contributions to community projects)

(Valette 2014, classification based on Dorward et al, 2005)

International institutions such as the FAO and the OIE have acknowledged the importance and welfare needs of working animals, through the 2011 FAO experts' meeting on the role, impact and welfare of working (traction and transport) animals, as well as the OIE Standards for the Welfare of Working Equids, currently under development.

Much more needs to be done however by international institutions, donors, national governments and other relevant stakeholders, to ensure that working animals are adequately considered in policy and practice.

References:

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48. Bhubaneswor Dhakal, Nepal

The key message: The guidelines should focused on stopping antagonistic policies of influential international agencies in promoting livestock management in institutionally weak countries and working on other primary problems.

I strongly believe that livestock business is an engine and inspiration of social development, economic prosperity and environmental conservation in most rural communities in developing countries. The business is also an engine to maintain rural vitality in many developed countries but commercial scale farming practices resulted substantial environmental problems. Sustaining the livestock business in many communities of developing countries requires resources from different ecological regions or other a common property resources due to smallholding of private land or agro-ecological problem. The business competes with land resources with many other competitive uses. Many national and international agencies (bilateral agencies: e.g. the USAID, DFID, NORAD, and SDC, multilateral agencies: e.g. FAO, WB, UNDP, IUCN and WEP) have misunderstood the historical institutional setting of land resource management in the regions and played antagonistic policies to manage the resources for livestock in the institutionally weak countries. Their policies on the community pastureland, forest land uses and livestock management policies have been seriously impacting on farming land abandonment, food insecurity, social tragedy to women, regional economic backlashes, and agro- biodiversity losses in many developing countries and particularly socially disadvantaged region. The policies have also indirectly impacting on food and nutritional insecurities and escalated treats of extinction to some indigenous ethnic groups. The impacts are resulted from reactionary slow process. These processes and impacts can be poorly understood based on conventional and textbook based knowledge. Developing effective working guidelines require understanding the complex issues with constructive vision and in broader and dynamic social, economic and biophysical systems.

Most of guidelines in contemporary policy documents of both national and international agencies are developed to tackle secondary problems due to poor understanding of policy experts and decision makers on those complex problems. The supports of the international agencies on alleviating the secondary problems makes small differences in the communities. As a result the livestock management problems in many disadvantaged regions are increasing. The references listed below might be helpful to understand the critical problems. If the panel of experts would like to develop policy guidelines to make tangible benefit to disadvantaged people with enhancing social, economic and environmental sustainability they should focused on addressing primary problems. The policy guidelines should be served as a pressuring tool for stakeholders and provided morally binding messages for policy and program decision makers and funding agencies. Since the international agencies play critical roles in developing and implementing policies that affect livestock management in institutionally weak countries. The policy guidelines should also pinpoint the bad governance and create moral pressure in considering the problems of institutional weak communities of the influential international agencies. Finally I would like to suggest the panel to start their job by reviewing the antagonistic policies and other institutional weaknesses of FAO (whole organizational level) related to livestock development in developing countries.

The Local Environmental, Economic and Social Tragedies of Managing Community Forests for Global Environment Conservation: A Critical Evaluation. The Open Journal of Forestry. 2014, 4(1):58-69.

Forests for food security and livelihood sustainability: Policy problems and opportunities for small farmers in Nepal. Journal of Sustainable Agriculture. 2011, 35(1):86-115. I strongly believe that livestock business is an engine and inspiration of social development, economic prosperity and environmental conservation in most rural communities in developing countries. The business is also an engine to maintain rural vitality in many developed countries but commercial scale farming practices resulted substantial environmental problems. Sustaining the livestock business in many communities of developing countries requires resources from different ecological regions or other a common property resources due to smallholding of private land or agro-ecological problem. The business competes with land resources with many other competitive uses. Many national and international agencies (bilateral agencies: e.g. the USAID, DFID, NORAD, and SDC, multilateral agencies: e.g. FAO, WB, UNDP, IUCN and WEP) have misunderstood the historical institutional setting of land resource management in the regions and played antagonistic policies to manage the resources for livestock in the institutionally weak countries. Their policies on the community pastureland, forest land uses and livestock management policies have been seriously impacting on farming land abandonment, food insecurity, social tragedy to women, regional economic backlashes, and agro- biodiversity losses in many developing countries and particularly socially disadvantaged region. The policies have also indirectly impacting on food and nutritional insecurities and escalated treats of extinction to some indigenous ethnic groups. The impacts are resulted from reactionary slow process. These processes and impacts can be poorly understood based on conventional and textbook based knowledge. Developing effective working guidelines require understanding the complex issues with constructive vision and in broader and dynamic social, economic and biophysical systems.

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Forests for food security and livelihood sustainability: Policy problems and opportunities for small farmers in Nepal. Journal of Sustainable Agriculture. 2011, 35(1):86-115.

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Thank you.

Best Wishes.

Bhubaneswor Dhakal

49. Mizeck Chagunda, SRUC, United Kingdom

A) On the drivers, one on the issues that may need exploring is the critical role of innovation and behavioural change on food and nutritional security via such factors as diet diversification, crop and livestock productivity, and food losses.

B) On the pathways towards sustainable crop and livestock-based systems, some of the issues that may need investigating are:

i) Trade-offs and synergies between livestock and crop production in the role of livestock to food and nutritional security in crop-livestock mixed systems.

ii) Explore the role of feed-food complimentarity systems.

iii) Explore the impact and contribution of livestock system intensification to food and nutritional security in different land tenure systems.

50. Kovutarapu B N Rayana lamma, United States of America

Most of the developing countries are under small farming which needs an immediate way of introducing the multi activities and commodity approach enable the farmers can have a value added income.

The other alternative idea is introduce the small scale agro-industries which will be not only market value but also climate smart and pollution less practices which generates total employment and migration stops .

This will not only increase the life and standard of living of farmer but also he secure with good life.

Context, drivers and challenges

The sustainability agriculture attributes at the context of multiple culture of commodities. Ie., a combination of farm crops(main cereals like paddy/wheat etc) with subsidiary of vegetable crops/pulses etc., along with raring of domestic animals of milking, poultry etc.(value ADDED PRODUCT)

Drivers involved in this more with 1. Family farming

2. small and medium/marginal farmers

3. Farming labors

4. developing countries and less developed countries.

5. develop a land hold rights In developing countries along with land possible distributions

6. small scale agro-industries development

7. bring youth etc under farm employment including labor and

8. fixation labor wages on par to industrial sectors

9. commodity prices improvement/ minmum support price of the product., at farm level

10. finance /banking facility for farm

Challenges :

a. Strengthen the primary market to consumer market

b. Implement farmers markets wherever possible – a direct sale will cut down food price and process fee

c. Use local food more on table than import and transport—environmental friendly

d. Irrigation and or watershed development at community /individual levels

e. Integrated pest management

f. Organic more with use of OM a fine food with healthy manner.

g. Farmers training and scaling the program where it success.

h. A clear development of self styled and enterprenure development.

i. Safe guard farm lands

Pathways:--

There are pathways which can develop already success stories from the other developing countries .

For eg. India – at one place all this with sustainable., and other place living at farm and running farm as business , and other creation is some farmers and non farmers creating local market and bridging for exports as agents /bokers.

How does it makes sustainable:

It is possible only with the help of using local resources including human resources , with ethics of policy in the government ., along with creation of interest among the farmers .

A question how does we can advocate it:

It is addressing with the current problems and encounters,which gives for solutions as a matrix and drivers to enable the farmer or new farmer can learn and implement and easy to earn.

Further using the farmer as a tracder for local city and urbanareas where he can sell his produce at good and fessible prices. Also possible inclusion of raising cold storage using renewable energy .

(In this regard if any information needed donot hesitate to call me at rayanakbn@aol.com or USA 5163239339 or sms too.)

Last but not least: advantage with this is a regular income and income generated project --- as sustainable agriculture.

By

Kbn Rayana, DG IAMMA (www.theiamma.org)

51. Geoff Orme-Evans, Humane Society International, United States of America

Humane Society International (HSI) is one of the world's largest animal protection organizations working to protect all animals. HSI's farm animal welfare initiatives engage stakeholders at every stage in the supply chain for eggs, milk, and meat—including farmers, governments, food retailers, financial institutions, and consumers—to improve the welfare of animals raised for food. We greatly appreciate the opportunity to provide input to the draft Scope of the HLPE Report on Sustainable agricultural development for food security and nutrition, including the role of livestock.

General comments:

The draft scope clearly strives to be comprehensive in its evaluation of sustainable agricultural development. Overall, the balance between the context and solutions in the Scope is logical. Still, three issues deserve enhanced focus within the report: the industrialization of animal agriculture, animal welfare, and the unsustainable demand for animal source foods.

1) Industrialization of animal agriculture: More than 75 billion land animals were raised for food in 2012 alone, and that number is projected to rise significantly in the coming decades. Much of the

growth in the animal agriculture sector is in industrial farm animal production. Industrial facilities concentrate tens of thousands (or often even hundreds of thousands) of farmed animals along with their waste, frequently indoors. Worldwide, industrial systems already account for more than two-thirds of egg and poultry meat production and over half of pig meat production.

Industrialization includes increased consolidation of farm animal production, with small numbers of producers controlling a large percentage of the market for eggs and meat. Such consolidation has been shown to decrease income opportunities in rural areas by pushing small farmers out of the market, reducing on-farm employment opportunities, and damaging the natural resources upon which rural communities rely. Industrialization also means farm animal production is more geographically clustered, creating environmental and public health threats. More information on the negative impacts of industrial farm animal production on human health, the environment, and animal welfare can be found here, http://www.hsi.org/assets/pdfs/hsi-fa-white-papers/factory_farming_and_food.pdf, and should be included in this report.

2) Animal welfare: Animal welfare is the physical and psychological state of an animal. There is a scientific basis for animal welfare concerns, and the welfare of farm animals should be clearly addressed in the report along with other sustainability issues and social development goals. Globally, a large proportion of farm animals are confined in welfare-depriving cages, crates, and pens which prevent the animals from exercising, fully extending their limbs, or engaging in many important natural behaviors.

The Five Freedoms is a framework for approaching animal welfare that is applicable to farmers and producers at every scale, in a wide range of conditions: from backyard chicken production in rural Kenya, to large agribusiness facilities in the United States. It is a logical way of thinking about the animal welfare problems that can occur in different housing and management systems, and lays out the important needs of animals that should be addressed. The report should therefore include the Five Freedoms. For more information, please see: http://webarchive.nationalarchives.gov.uk/20121007104210/http:/www.fawc.org.uk/freedoms.htm

3) Unsustainable demand for animal source foods: The report should clearly address the need to stem the rise in farm animal populations, and present the latest science showing the potential for dietary changes to mitigate the serious global and local environmental problems—from climate change to water pollution—resulting from animal agriculture. The report should also highlight the burgeoning global campaigns to reduce the demand for animal source foods, such as Meatless Monday.

Specific comments: Based on the above, we respectfully request the following:

Section A(1): While including projections of future demand, particularly of animal source foods, can be useful, the assumptions for the projections should be clearly explained. Projections should be taken as just that, projections. Assigning additional weight to them, i.e. taking them as definitive pathways, as has been done elsewhere, can unnecessarily color the potential to change them. This is particularly important for setting the proper background for the discussion of possible demand-side solutions.

Section A(2): Animal welfare should be included in this section.

Section B(3): Animal welfare should be included, so that it reads "…including animal welfare…" instead of merely "animal disease…."

Section B(4): While perhaps not necessary for elaboration in the Scope, the report itself should ensure that animal welfare is included in the "objectives and elements of sustainable approaches to agriculture."

Section B(5)(a): Data on the impacts of livestock production should be disaggregated based on the type of production and the communities impacted. Animal source foods from different types of facilities (for example: industrial farm animal production facilities in peri-urban areas, as opposed to rural, localized small-scale production) may enter different supply chains, and have differing impacts on nutrition and food security. Some types of farm animal production may contribute to a rise in obesity and chronic disease in developing and emerging economies, where these problems of overconsumption (particularly in urban areas) co-exist with under-nutrition (often seen in rural or remote areas). Small-scale, localized production may be more likely to improve nutritional outcomes in rural households suffering from chronic under-nutrition. This type of disaggregated data is critical for the design of sustainable, equitable, and well-targeted agriculture and nutrition programs.

Section B(5)(b): As indicated above, it is essential that consumption patterns will be included in the final Scope, as well as the report itself. Thus, it is important that it appears and remains in the draft. Further, improved animal welfare should be highlighted among the practices here.

Section B(5)(d): Among other aspects of the enabling environment, this section should evaluate the removal of current, misplaced subsidies and their impacts.

Thank you, again, for the opportunity to submit comments. We are happy to discuss these points further.

52. Fisheries and Aquaculture Department, FAO, Italy

FI Comments on HLPE activity - Sustainable agricultural development for food security and nutrition, including the role of livestock - E-consultation to set the track of the study

It is not clear if "fish" or "aquatic animal production" is fully recognized under "livestock" in the document and the process.

Considering the role of fish in nutrition and health as well as a source of animal-based-proteins for consumption, fish or aquatic animals should be clearly mentioned and considered in the HLPE process.

Fish and other aquatic products (e.g. seaweed) have significant contributions to food security and nutrition. This has been well recognized in many fora, including the HLPE consultation on "The Role of Sustainable Fisheries and Aquaculture for Food Security and Nutrition".

Fish or aquatic animals are considered having much lower environmental footprints in production compared to the terrestrial animals.

Aquaculture, a.k.a. fish farming, involves food producing activities similar to livestock production. Indeed, while aquaculture used to be deemed a sub-sector of fisheries, it has been more properly treated by some industry classification systems (e.g. North American Industry Classification System or NAICS) as a component of "Animal production" to which livestock belongs.

Aquaculture, which is a much younger food producing industry compared to livestock, can learn a great deal from the successes and failures of sustainable development in livestock.

As suitable sustainable approaches to agriculture (including livestock) tend to differ across regions or countries because of differences in resource endowments, economic development, governance structure, cultural tradition, etc., the study should adopt a regional approach if possible or at least highlight regional or national differences.

Constrained by information and time available to prepare a report on such a broad subject, the study may not be able to cover all relevant themes or answer all relevant questions. Therefore, it would be useful for the study to identify and document information and knowledge gaps and propose future studies to fill in these gaps.

FI should be represented in the Expert Group.

53. Inland Fisheries Group, FAO, Italy

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

Comments on the proposed draft scope of the HLPE Report on sustainable agricultural development from the inland fisheries group of the FAO Fisheries and Aquaculture Department.

We would like to thank the HLPE for providing the opportunity to participate in the E consultation to set the track of the study "Sustainable agricultural development for food security and nutrition, including the role of livestock". Our contribution will follow the structure of the scoping paper, comments will be linked to paragraphs of that document:

A) Context: drivers and challenges

1. Assessment of projections with respect to future food demand

With respect to the assessment of existing projections of future food demand, we would like to draw attention of the panel to the publication: Fish to 2030: Prospects for Fisheries and Aquaculture, WorldBank report number 83177-GLB (http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/01/31/000461832_20140131135525/Rendered/PDF/831770WP0P11260ES003000Fish0to02030.pdf). In this report projections are made, following different scenarios, with respect to consumption of fish in the world. Currently 16% of all animal protein consumed globally comes from fish and this proportion is likely to increase.

Important to note is that the global population will grow, as will be the buying power of part of the global population. This will mean increased demand for animal protein which livestock will, at least partly, need to fulfill. However, the attention of the panel is drawn to the fact that capture fisheries has a much lower ecological footprint than livestock, and therefor it would be important to not ignore the role capture fisheries need to play to address animal protein demands. Fisheries production needs to be taken into account when management decisions need to be taken in catchment areas. There might be a need for irrigation or hydropower for the production of feeds for livestock, however, these interventions will have a significant effect on fishery production in the catchment area concerned, let alone on the livelihoods of the people dependent/linked to capture fisheries production.

2. Implications (challenges and opportunities) for:

a. Food security and nutrition

In our opinion fisheries and aquaculture have a significant role to play with respect to food security and nutrition. Fish is an important source of animal protein in human consumption (Delgado et al 2003), and features prominently in the diet of many people; fish are often easily accessed and affordable. Fish is especially rich in essential omega-3, long-chain polyunsaturated fatty acids, amino

acids and micronutrients, including vitamins, bioavailable calcium, iron and zinc (HLPE 2014, Longley et al 2014), which all play a critical role in cerebral development, immune defense systems and general health. Small quantities of fish can have a significant positive nutritional impact by providing essential amino acids, fats, and micronutrients that are scarce in vegetable based diets (FAO 2012).

b. access to land and natural resources;

With respect to access to land and natural resources, we would like to draw the attention of the panel to the weak political position of many fishers and fishing communities. Even though they represent a significant amount of production, because of their marginalized position, the fishery sector is often not well considered when water development and management decisions are taken. This results in the loss of animal protein production, and income for the marginalized groups described.

If fish production from capture fisheries would have to be replaced by grazing livestock, this would result in a substantially increased grazing area and increased water extraction at levels which would be difficult and environmentally costly to sustain.

When decisions are made with respect to managing water, for instance to irrigate cereals needed for animal feeds, one of the effects could be the reduction of fish production. The net effect might therefore be that less animal protein production.

Aquaculture fish convert more of their feed into body mass than terrestrial animals; the production of 1 kg of beef (resp. pork and fish) protein requires 61 kg (resp 38 and 13 kg) of grain (HLPE, 2014)

c. agricultural production and productivity increases;

Reference is made to earlier comments with respect to the efficiency of animal protein production, and the effect of replacing fish production by cereals for animal feeds production;

d. economic development

No Comments

e. the health of the environment and ecosystems, including climate change and biodiversity.

We would like to draw the attention of the panel to the fact that there is wide recognition that the value of aquatic ecosystems lies in the sustained net benefits derived from the many goods and services (including fisheries) provided by those ecosystems, and not just from one or a few (such as hydropower, navigation and irrigation) that seem to be of higher importance because of their higher contributions to GDP. Only healthy aquatic environments and ecosystems can produce the full scale of divers and healthy populations of living aquatic organisms (including fish) that are important for the stability of inland water ecosystems and ultimately for the aquatic productivity (also in terms of fish production). In rivers, the ecological continuity, that is the connection of rivers to lakes, floodplains, tributaries and eventually to the sea is of high importance in this respect. Dam and levee construction, as well as draining of wetlands prevent fish and nutrients from completing their natural cycles. These cycles support not only inland biodiversity and fishing communities, but marine and coastal biodiversity, fisheries and communities. Protection and conservation of the aquatic environment and its biodiversity is required by several international instruments, e.g. the Convention on Biological Diversity (CBD), the Ramsar Convention, the FAO Code of Conduct for Responsible Fisheries and the EU Habitat and Water Framework Directives. Furthermore, the use of antibiotics and chemicals in intensive farming systems could become a concern with respect to the effect on habitats and resistance of strains of pathogenic bacteria affecting natural fish stocks, or people.

B) Achieving sustainable agricultural development for food security and nutrition

3. Sustainability challenges for crop and livestock-based agricultural and food systems.

The attention of the panel is drawn to the crucial role fisheries and aquaculture play with respect to the production of animal protein, including essential micronutrients and important amino acids, for which there are limited alternative sources. The fisheries and aquaculture sector should therefore be considered/included when reviewing sustainability challenges for agricultural and food systems. The current description of the review seems to be ignoring the fishery sector.

4. Objectives and elements of sustainable approaches to agriculture.

No comments

5. Pathways towards sustainable crop and livestock-based systems:

a. Livestock as an engine for the development of the agriculture and food sector.

The attention of the panel is drawn again to the danger which exists when livestock production will be increased; more livestock feed will need to be produced, which might result in water management decisions reducing the amount of water available for fisheries. Land and water are often degraded by many types of livestock production (FAO 2006). The net effect of these decisions might be that less animal protein will be produced.

b. Practices from different perspectives.

No Comments

c. Barriers to change.

Looking only at GDP values (with mainly low GDP values associated to fisheries) when making decisions concerning management and development of river or lake basins seems to be a barrier.

d. Needed enabling environment

No Comments

6. Conclusions and recommendations for policies and actions.

No Comments

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54. Jethro Greene, Caribbean Farmers Network , Saint Vincent and the Grenadines

Presentation by Mr. Jethro Greene,

Chief Coordinator of the Caribbean Farmers Network (CaFAN)

About CaFAN

Formed in 2002 and legally registered in 2007, the Caribbean Farmers Network (CaFAN) is a regional network of farmers' associations and NGOs representing over 500,000 farmers in 15 countries. With a secretariat in St. Vincent and the Grenadines, CaFAN works to strengthen producer groups across the Caribbean.

CaFAN's mission is to enhance Caribbean food and nutrition security, foreign exchange earnings and foreign savings, by repositioning agriculture through the capacity building of farmers and he institutional strengthening of farmers organisations.

Its members are directly involved in production and marketing for the domestic, regional and extra regional markets. They are also involved in farmers training, promotion of nutritional Caribbean foods, market access, agro-processing and value addition, testing of agronomic practices and organic farming.

The CaFAN's Secretariat is mandated to speak on behalf of its membership and to develop programmes and projects aimed at improving livelihoods. CaFAN also focuses on market led sustainable mechanisms and structures, working in collaboration with all stakeholders in the agriculture sector to the strategic advantage of its farmers.

CaFAN assists with policy advocacy with its national, regional and international partners, which can result in better-crafted programs and projects to create sustainable opportunities for youth in agribusinesses. The focus on youth supports the regional policy thrust led by CARICOM through the Caribbean Community Common Agricultural Policy (CCAP). This policy is built on five key pillars, the fourth of which was advocated by the CaFAN Secretariat – Youth and Rural Modernization. Under this pillar, CaFAN has been advocating for modern amenities and infrastructure in rural communities that will stem the rural to urban drift.

CaFAN's focus on Holistic Agriculture

CaFAN's focus on Agriculture is beyond just food security. CaFAN believes that Agriculture should be linked to providing solutions to the various other challenges including, unemployment, high national debts, foreign resource earning and overall economic growth and social growth and stability.

Why the focus on Small Farm Families?

- Small farm families represent a key platform for social and economic stability.
- Making them viable business will help to promote increased employment, curtailing rural urban migration, reduce poverty and creating greater food and nutrition security.
- Access to market is key to promoting smallholders viability for sustainable business enterprise.
- Strengthening this key sector by supporting farmers / small holders groups and clusters is a key strategy for them to gain economies of scale and compete in the global environment.
- Large farmers will always have better access to financing and technical support.

Linkages

We have a tendency to focus services within the regional plan without looking at strategic linkages. For example, since the decline in production of traditional commodities such as bananas, rice and sugar, the Caribbean region has been largely dependent on tourism and services. But this focus on tourism and services should not lead to the death of agriculture as a sector. Tourism provides an excellent opportunity to boosting agriculture. Currently, agriculture is on the up and this is largely as a result of the contribution of small-scale farmers, which more than half of them are women. Over the last 10 years or so, small-scale farmers have found solace in vegetable, fruit and root crop production. These farmers have refocused their efforts to supplying domestic markets and sending surplus to regional markets. In so doing, they have been playing a key role in moving the Caribbean territories closer to achieving food security.

Other important linkages of agriculture include:

- Export markets - tertiary exchange;
- Employment;
- Food as nutrition security;
- Conservation and environmental preservation. Agriculture has a very positive or negative impact on the environment and as such we should be looking to promote environmentally sound practices in Agriculture;
- Foreign exchange earning to help reduce foreign debt;
- Poverty alleviation;
- Rural modernization and focus on youth to prevent rural urban migration;
- Facilitate the strengthening of existing CAFAN farmers' groups and clusters and ensuring technical and financial assistance are available to farmers for disaster risk management mitigation.

Placing Agriculture at the center of social and economic development of the region would afford us the advantages of building sustainable growth models which will be under our control.

The Caribbean Food & Nutrition Security Agenda

The Issues

1. There is an apparent disparity between the sheer volume of proposals and policies to advance food and nutrition security in the Caribbean Region and their traction to advance this agenda at the national level. Several policy framework and related food and nutrition security policies exist at the Regional level (e.g., the Regional Transformation Program (RTP); The Jagdeo Initiative; The Liliendaal Declaration; the Regional Food & Nutrition Security Policy and Action Plan; The Regional Agri-Business Strategy; etc.). Similarly, many countries have their national agriculture policy and strategy, national food and nutrition policy and action plan both of which are situated within these countries national development plans. Both at the Regional and National Levels these policy framework and related policies and action plans have been in existence for many decades.

2. Despite (1) above, CARICOM countries, with the exception of Guyana and Belize, are net food importers. Indeed, the regional food import bill is now in excess of US 5billion, with our major food imports being food from animals (~US$900M/yr), wheat. Maize and derived products (~US $500M/yr), processed foods (~US$500M/yr), which, together account for over 40% of the region's food imports. In effect, the region has not solved its agricultural supply-side problems.

3. Poverty is a serious problem and cannot be characterized as existing in pockets in the countries. Absolute poverty rates (inability of individuals to meet food and non-food needs), average 11-28% in the region. Additionally, another 10-20% of the population is vulnerable to poverty, i.e., are at risk of falling below some given poverty threshold should an unanticipated event such as a natural disaster or economic shock were to occur).

    - The poor are now moving are moving out from urban into the peri-urban areas and from rural to parishes surrounding the capital parish;

    - Children (0-14, and young adolescent/teenagers, 15-19) and the "working poor" (persons who are working but below the poverty line), are disproportionately represented in the poverty rates. This has serious implications for cognition, educational achievement/certification and inter-generational transfer of poverty;

    - Well-intentioned national poverty alleviation programs are stymied by frequent shocks—natural disasters, world economy crises, etc.;

4. Nutrition/food-related chronic non-communicable diseases (NCDs) are the main public health problems in the region. It has been estimated that if the region were to treat just two of these diseases (diabetes and hypertension), the direst cost (doctors' fees, hospitalization and medications) will be more than 60% of what the region is currently spending on public health. These NCDs are linked to hunger, poverty, inappropriate diets (low in fruits and vegetables and high in fats, oils, salt and sweeteners), and lifestyle choices (low physical activity, smoking and alcohol use).

5. The issues raised in 2-4 above reveal that all four components of food and nutrition security (food availability, access, consumption/utilization and stability), in the Caribbean are compromised.

The Way Forward

The responsibility to overcome poverty, hunger, food insecurity and malnutrition ultimately lies ultimately with the individual. But, as elsewhere, there are significant inequalities in health, incomes, education, governance, etc., in CARICOM countries. This makes policies operationalized into targeted interventions imperative, with specific roles for the international community, regional agencies and national governments. At the minimum, international support both at the regional and national levels, must exercise greater diligence (at program development, monitoring and evaluation stages), to ensure that funds allocated are efficiently utilized to achieve program outcomes. Relatedly, the international community needs to scale up their technical and financial assistance to support the region's agriculture, farmers and the population generally. National governments/policy makers must exercise similar diligence and also address in a focused and deliberate way the issues raised in 1-5 above.

Advantages

Over the last few years, CAFAN noted the renewed emphasis of key players in the Regional Agriculture sectors who are working together to strengthen agriculture within the Region with CARICOM leading by creating the Policy Frameworks such as the Regional Food and Nutrition Security Policy (RFNS) and the Community Agricultural Policy (CAPS).

CaFAN sat on both technical working committees and were pleased that the suggestions of the farmers/farmers organisations were included in the final policy document. In fact, CaFAN recommended the fourth pillar of the CAP; Youth and Rural Modernization to help address some of the issues affecting Youth and Women in the sector. The pillar seeks to "promote the modernization of rural communities by improving the quality of life through increasing opportunities in agribusiness, strengthening institutions supporting agribusiness and community development at all levels and building social Capital in rural communities", and targeting youth and women especially.

Currently, CaFAN has a one year project with the Technical Centre for Agricultural and Rural Cooperation (CTA) to help contribute to the design and effective implementation of the CAP Youth

and Rural Modernization pillar by getting inputs from regional youths. Several activities have already taken place and the recommendations will be presented to COTED and the Alliance at the upcoming Caribbean Week of Agriculture 2013.

CaFAN commends the high level of collaboration amongst the key regional and international agriculture institutions and organizations working within the region - FAO, CARDI, IICA, CTA, CEDEMA, OECS and the Universities who are making it easier for organizations like CaFAN and other farmers organization to see greater opportunities for growth and development thought agriculture. This is certainly a great movement to build on.

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55. Farhad Mirzaei, Animal Science Research Institute of Iran, Iran (Islamic Republic of)

Soil,climate,vegetation,tradition,science,livestock and people are all part of the ecosystem

56. Subhash Mehta, DST, India

The New meta-analysis, providing evidence to show organic can feed the world'.

A new meta-analysis shows that the low cost organic yields don't lag much behind the high cost high risk conventional.

An earlier study, conducted over 21 years at the Rodale Institute, found even more promising results for organic. Corn and soy yields were about equal between conventional and organic farming systems, but in drought years the organic systems had significantly higher corn yields (31% higher) than the conventional system. There's more about the Rodale study here and here.

The new analysis "tackles the lingering perception that organic farming, while offering an environmentally sustainable alternative to chemically intensive agriculture, cannot produce enough food to satisfy the world's increasing requirements."

1. Can organic crops compete with industrial agriculture?

Phys.org, 9 Dec 2014

http://phys.org/news/2014-12-crops-industrial-agriculture.html

A systematic overview of more than 100 studies comparing organic and conventional farming finds that the crop yields of organic agriculture are higher than previously thought. The study, conducted by researchers at the University of California, Berkeley, also found that certain practices could further shrink the productivity gap between organic crops and conventional farming.

The study, to be published online Wednesday, Dec. 10, in the Proceedings of the Royal Society B, tackles the lingering perception that organic farming, while offering an environmentally sustainable alternative to chemically intensive agriculture, cannot produce enough food to satisfy the world's appetite.

"In terms of comparing productivity among the two systems, this paper sets the record straight on the comparison between organic and conventional agriculture," said the study's senior author, Claire Kremen, professor of environmental science, policy and management and co-director of the Berkeley Food Institute. "With global food needs predicted to greatly increase in the next 50 years, it's critical to look more closely at organic farming because, aside from the environmental impacts of industrial agriculture, the ability of synthetic fertilizers to increase crop yields has been declining."

The researchers conducted a meta-analysis of 115 studies - a dataset three times greater than previously published work - comparing organic and conventional agriculture. They found that organic yields are about 19.2 percent lower than conventional ones, a smaller difference than in previous estimates.

The researchers pointed out that the available studies comparing farming methods were often biased in favor of conventional agriculture, so this estimate of the yield gap is likely overestimated. They also found that taking into account methods that optimize the productivity of organic agriculture could minimize the yield gap. They specifically highlighted two agricultural practices - multi-cropping (growing several crops together on the same field) and crop rotation - that would substantially reduce the organic-to-conventional yield gap to 9 percent and 8 percent, respectively.

The yields also depended upon the type of crop grown, the researchers found. There were no significant differences in organic and conventional yields for leguminous crops, such as beans, peas and lentils.

"Our study suggests that through appropriate investment in agroecological research to improve organic management and in breeding cultivars for organic farming systems, the yield gap could be reduced or even eliminated for some crops or regions," said the study's lead author, Lauren Ponisio, a graduate student in environmental science, policy and management. "This is especially true if we mimic nature by creating ecologically diverse farms that harness important ecological interactions like the nitrogen-fixing benefits of intercropping or cover-cropping with legumes."

The researchers suggest that organic farming can be a very competitive alternative to industrial agriculture when it comes to food production.

"It's important to remember that our current agricultural system produces far more food than is needed to provide for everyone on the planet," said Kremen. "Eradicating world hunger requires increasing the access to food, not simply the production. Also, increasing the proportion of

agriculture that uses sustainable, organic methods of farming is not a choice, it's a necessity. We simply can't continue to produce food far into the future without taking care of our soils, water and biodiversity."

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2. Diversification practices reduce organic to conventional yield gap

Lauren C. Ponisio, Leithen K. M'Gonigle, Kevi C. Mace, Jenny Palomino, Perry de Valpine, Claire Kremen

Proceedings of the Royal Society of London B: Biological Sciences

DOI: 10.1098/rspb.2014.1396Published 10 December 2014

http://rspb.royalsocietypublishing.org/content/282/1799/20141396

Abstract

Agriculture today places great strains on biodiversity, soils, water and the atmosphere, and these strains will be exacerbated if current trends in population growth, meat and energy consumption, and food waste continue. Thus, farming systems that are both highly productive and minimize environmental harms are critically needed. How organic agriculture may contribute to world food production has been subject to vigorous debate over the past decade. Here, we revisit this topic comparing organic and conventional yields with a new meta-dataset three times larger than previously used (115 studies containing more than 1000 observations) and a new hierarchical analytical framework that can better account for the heterogeneity and structure in the data. We find organic yields are only 19.2% (±3.7%) lower than conventional yields, a smaller yield gap than previous estimates. More importantly, we find entirely different effects of crop types and management practices on the yield gap compared with previous studies. For example, we found no significant differences in yields for leguminous versus non-leguminous crops, perennials versus annuals or developed versus developing countries. Instead, we found the novel result that two agricultural diversification practices, multi-cropping and crop rotations, substantially reduce the yield gap (to 9 ± 4% and 8 ± 5%, respectively) when the methods were applied in only organic systems. These promising results, based on robust analysis of a larger meta-dataset, suggest that appropriate investment in agroecological research to improve organic management systems could greatly reduce or eliminate the yield gap for some crops or regions.

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3. Organic nearly as productive as industrial farming, new study says

Doug Gurian-Sherman

Civil Eats, 10 Dec 2014

http://civileats.com/2014/12/10/organic-nearly-as-productive-as-industrial-farming-new-study-says/

[Excerpt only below, full article at link above]

Industrial agriculture has huge, unsustainable impacts on our environment. And while organic and other ecologically based farming systems (agroecology) have huge benefits, some have suggested that it will never produce enough food. Production is only one of the challenges for food security. But, according to new research, even by this measure, critics seem to have substantially underestimated the productivity of organic farming.

Impressive research from Iowa State University has already begun to show that agroecological systems that don't completely eliminate synthetic chemicals can match or exceed yields from U.S. industrial grain production and provide equal or higher profits to farmers. Now, new research by a team of U.C. Berkeley scientists shows that organic systems can also be highly productive.

I want to point out that, despite the fact that we currently produce more than enough crops to feed our global population, around a billion people are hungry around the globe. And, in the meantime, we waste between 30 to 40 percent of the food we produce. In other words, crop productivity is only one piece of the food security puzzle. Food sovereignty is another important one…

[Read on at http://civileats.com/2014/12/10/organic-nearly-as-productive-as-industrial-farming-new-study-says/]

Diversification practices reduce organic to conventional yield gap

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Organic%20yields%20as%20good%20as%20conventional%20UC%20Berkley%20study%20pdf_1.pdf

57. Subhash Mehta, DST, India

Global Assault on Seed Sovereignty through Trade Deals Is Assault on Human Rights,

From Asia to South America, the EU to the Caribbean, the corporate seed industry is using international trade agreements to criminalise farmers for saving seeds

Dr Eva Sirinathsinghji

The multinational seed industry is continuing its multipronged attack on the most basic of human rights, the access to seed. Lobbyists of the seed industry are using trade agreements to pressure nations into adopting strict measures such as UPOV agreements that ensure the protection and ownership of new plant varieties for plant breeders. On top of this, corporate seed industry lobbyists are proposing revisions to the UPOV convention that promote further

monopolisation of the seed industry through 'harmonisation' of procedures for

registering and testing new plant varieties.

Protests in many regions around the world are putting up much needed resistance against this corporate takeover of the food system, successfully forcing governments to delay and even repeal the agreements. These movements are an inspiration for our continual global struggle against the relentless onslaught of agribusiness whose current biggest targets are the 'untapped' markets of the global South, with the spotlight on Africa and other regions where seeds have

not yet been commercialized, and are still used in traditional systems that allow seed saving and exchange.

What is UPOV?

The International Union for the Protection of New Varieties of Plants or UPOV is a Geneva-based intergovernmental union so far of around 70 countries that accept common rules for recognizing and protecting the ownership of new plant varieties by plant breeders. First established in 1961, the convention entered into force in 1968 and was revised in 1972, 1978 and 1991. The latest version, UPOV-91 significantly increases the protection of plant breeders, handing over monopoly of seed rights, and even making it illegal for the farmer to save and exchange

seeds for replanting. See [1] The Corporate Takeover of Seed under Many Guises,

SiS 64, for more details.

UPOV builds on the World Trade Organisation's agreement on Trade-Related Aspects

of Intellectual Property Rights (TRIPS) that was adopted in 1994 as the first international treaty to establish global standards for intellectual property rights over seeds. This has allowed corporations to force the "harmonisation" of patent laws across countries, ostensibly to create a unified global intellectual property regime with minimum standards and establish a dispute settle system to ensure its application and compliance.

Today all member countries are part of the 1978 or 1991 Act. Back in 1998, there were only 37 countries in UPOV, the majority industrialised. With recent international trade agreements however, the global South have been pressured to join, being told that intellectual property protection benefits the biotechnology industry and hence the national economy as well as food security These claims are unfounded, and in fact untrue; UPOV works to increase the

profit of multinational corporations in the North, and is proving to be a threat to food security especially for people in the South.

Proposed 'harmonisation' of UPOV system further erodes seed sovereignty

In the 88th meeting of the Consultative Committee (CC) of UPOV on 15 October 2014 in Geneva, lobby organisations representing the corporate seed industry pushed for further 'harmonisation' of the UPOV plant breeders system [2]. Their proposals include an international filing system, a UPOV quality assurance program and a central examination system for variety denominations, disguised as an "international system of cooperation" that would actually provide further protection to breeders with regards to filing and examination of new varieties in destination countries. In reality, these changes would increase patenting and biopiracy by commercial plant breeders, while placing the costs of the new system on individual nations and not the orporations commercialising the seed variety.

The International Seed Federation, the International Community of Breeders of Asexually Ornamental Fruit Plants (CIOPORA) and CropLife International, represent corporations that include Monsanto, DowAgroSciences, Syngenta, Bayer, and DuPont Pioneer, which together already control 75 % of private sector plant breeding research and 60 % of the commercial seed market. The new proposals would further increase the monopoly. These pro-industry organisations proposed an international filing system of cooperation (IFC) for registering a plant variety that would use a single application form in the language of choice of the breeder and submitted to the destination country for planting the seeds. The IFC would then be involved in distributing processed applications to target countries. This, they suggested would result in more applications by breeders for more crops, in more regions and countries. One of the most dangerous aspects of the proposals is that such applications would be confidential with regards to the pedigree and parental lines of hybrids, thereby greatly facilitating biopiracy. A preliminary review of the IFC would be sent to the destination

country for DUS (Distinct, Uniform and Stable) testing, all at the expense of the destination country, which the lobbyists proposed, should take place in centralised "centres of excellence" that would need to be developed. Breeders would send plant materials and fees for DUS testing to the centres of their choice, likely leaving governments without access to the plant material. The industry lobbyists further propose that the IFC should force UPOV member countries to implement these procedures themselves. These changes will compromise the right of UPOV member states to control the processing and examination of plant variety protection applications, and hence their national right to control their own food system in accordance with local climactic and ecological conditions that can decide the success or failure of a crop.

Read the rest of this report here:

http://www.i-sis.org.uk/Global_Assault_on_Seed_Sovereignty_through_Trade.php

58. John Kazer, Carbon Trust, United Kingdom

Once the metrics and key data needed for your analysis have been identified, the crucial issues of availability and quality must be resolved - we believe these issues need a specific work item and recognition as a barrier to change.

What decision-making framework will you use to determine the trade-offs between different metrics and farm practices? There are very few available which address the necessary scale whilst linking practical farm issues to diet, health and policy options.

59. Kamrul Islam, Cotton Development Board, Bangladesh

Model of a resilient village for sustainable agricultural development for food security and nutrition, including the role of livestock:

In Bangladesh to achieve "sustainable agricultural development for food security and nutrition, including the role of livestock", resilience at village level is necessary incorporating the people and their resources, land and production practices, available input and product, inflow and outflow of cash capital, and their excess to external information, services and capitals. A village is the smallest administrative boundary at rural areas of Bangladesh. The peoples who live in the village directly or indirectly depends on agriculture for their livelihood. Usually five to several hundred farm family living together who belongs to the same ancestor, building their homes in a cluster across the village locally known as "Para" and thus a village is consisted of several "Paras". The father-workable person

in a family is the head of the family used to manage the outdoor activities including agricultural production practices while the mother used to manage the post-harvest activities including the livestock. Besides, the homestead areas that managed by mother for growing seasonal vegetables and raising poultry. The children and the older person are the main dependant of a farm family. The main resources of a farm family is their home and homestead area that used for growing vegetable and local fruit trees, post harvest operations as well as play ground for small children and the grazing area of domestic animal; a shared pond-water of that used for bathing, cleaning and cooking food, used for fresh water fish farming and sometime as a source of irrigation water to crop land nearby during dry period; and some piece of land used for crop cultivation. A farm family uses family labour together with hired labour in growing crops and sometime work at other farmer's field as a hired labour that are the main sources of their income. They used to purchase inputs like seeds, fertilizer and pesticide from the nearby village market also sell their product over there. Most of them have no access to formal financial institutions, few of them have access to microcredit with higher interest rates, majority of them depend on informal cash from local lender with the highest interest rate and most of the time it become burden to them. Likewise, their access to the information is limited. They are vulnerable to various natural disaster that are aggravated by the climate change. The social capital at village level is high as they share each other in well and woe.

In this context, sustainable agricultural development at Bangladeshi village never be achieved considering the linear factor in general like provide inputs and obtain yield and improve the farm family food security. Rather we have to identify the complexity of food security and identifying the factors and should take appropriate measures. I would like to propose indicators based "sustainable agricultural development for food security and nutrition, including the role of livestock" applicable to a village level of Bangladesh as a pilot project. The key areas of intervention are: selection of a village, collecting current demographic, agricultural including livestock, socioeconomic and livelihood data, setting the current status at various rank from 1 to 10 at farm family level and the average at village level. Targeting the raising of key areas rank within a given time frame as an indicators of sustainable development by providing necessary support to adopt appropriate practices by the farm families.

60. David Finlay, United Kingdom

I am an organic tennant dairy farmer in Scotland. We have diversified into added value dairy and beef products and tourism, exporting as far as Sth. Korea.

Over the past 10 years we have developed and implemented a sustainable foood model which has been independantly assessed and relative to an average UK dairy, cuts soluble fertiliser, weed-killers and vaccines by 100%, anti-biotic and pesticide use by 90%, GHG emissions and energy use per unit of product by 50%, enhances biodiversity by 300% and substantially cuts diffuse pollution while doubling the productive lifetime of the cows.

The model requires 20% less hours per worker and achieves award-winning animal welfare standards, while delivering a net gain to the global food supply. By its nature it relies substantially less on purchased inputs and as such displays a greatly enhanced robustness against global commodity price fluctuations.

The model is a management-based system and has been developed around the principles of Lean Production - waste minimisation, simplification and cost internalisation, and applies the techniques used by agri-ecology, agri-forestry and renewable energy systems.

It is profitable, even at current prices.

The major hurdle against achieving full implementation is the cost of conversion. We have sought assistance from funding bodies and research organisations to no avail. We have taken the model to the industry, agricultural journalists, research organisations and consumer groups. Apart from the consumers, the reaction has ranged from dis-belief through dis-interest to out-right hostility.

We have achieved 80% of the model targets and need the funding to achieve the final, but most difficult, part of the model.

It seems to us that the only way forward is to raise the funding required through some kind of crowd-funding/private share-issue approach. The industry is clearly disinterested in what seems to me to achieve the elusive goal of sustainable intensification.

The reason for the industry reaction, I fear, is that we have a consumption-based food system and, let's face it, its over-consumption that is driving all the issues arising from western agriculture. Our management-based model flies in the face of that mantra.

So, I'm afraid, your search for sustainable farming systems is not going to be seriously helped by the existing agricultural establishment.

I hope this example might help you in formulating your approach to this crucial issue.

Good luck!

61. Joanne Daly, Australia

The scope covers the broad range of issues necessary to address this topic.

There are two issues that I would like to see included in the analysis - these have been alluded to by other commentators. One relates to gender issues: women play a key role in the provision of nutritious food to their families through choices they make; and also through the food that they produce as small holder farmers. What are the barriers that women face in increasing their production (education, access to money)? Will shifts in agricultural practices enhance or decrease women's ability to participation in food production?

The second issue relates to section 5Bc: access to education, training, access to knowledge need also to be considered. It is not only about technological solutions but it is also enabling farmers and those in the supply chains to have the knowledge to exploit the wide range of possible options for enhancing production.

62. Ian Hollingsworth, IUSS, Australia

Contaminant bioaccumulation is a challenge in industrial agricultural production and global urbanisation is a driver that warrant consideration in the context of the report.

63. Flordeliza Bassiag, Isabela State University, Philippines

Given the emerging challenges pose by climate change and severe environmental degradation, there are observed, both small and huge practices, that could help promote food security and improve nutrition of marginalized families (undernourishment as well as obesity) in the Philippines, Northern Luzon in particular. They are as follows:

1. On landscapes: Degraded forests can no longer immediately rehabilitated, thus those settlers were given optins to plant fruit beaing trees, forest trees and shrubs that have high value and could serve as both sources of food and as weindbreaks to strong typhoons; families who have farms (both with small lots and larger lots) were also encouraged to plant fruit trees as well as high value cash crops as sources of income of families and as good sources of nutrition for their families. As staple foods, cornlands and ricelands are also being maintained and expanded further (in idle areas with no existing cash crop) where minimal irrigation is required. In order to also promote healthy benefits of foods, indigenous food sources are being propagated and organic farming promoted.

2. In relation to livestock, conservation of native stocks are being promoted through research and development and community-based interventions. It is also encouraged among households to rear native chickens and other poultry and native swine to support their protein needs. This is being sustained through local or village level ordinances or policies to promote both food security, nutrition and economic and social empowerment.

3. The role of women in gardening and home-based rearing of animals cannot be undermined. In fact, in this part of teh country, women initiates farming most of the times while men will provide for inputs.

Challenges:

Policy implementation about these matters should be further strengthened and government should provide incentives to initiatives of farming communities.

64. Evans Odhioambo Opany, Close Range Ent. Community Empowerment Centre, Kenya

The comments on scope is wide enough to capture most important issues in any region. But due to differences in technologie and experience in different regions globally. We need to look at how best to inform issues affecting suatainable agriculture per region or country. Focusing on how arid, semi arid ,desert area can be improved for agriculture and livestocks management.

Looking at east Africa region capacity to feed its population, even in areas affected by War ;South Sudan,Somali .

65. Themba Phiri, South Africa

Food and nutrition security continue to play a pivotal role in deciding better livelihoods for the poor. A closer look and link at the two points to the fact that development practitioners need to come up with tangible innovations that can address the two. The crops and livestock nexus plays a big role in food and nutrition programs, in that we have to tailor make programs that address firstly the design of land use patterns, this will lead us to what interventions farmers and communities can pursue. Looking at the role of livestock for both meat, milk, and fertilizer, we need to design land use patterns that will align well with proper livestocking rates. With the correct livestock carrying capacities and stocking rates, livelihoods for poor communities will be enhanced. However more land is being opened by farmers for crop production and the products from the crops are not being

channeled to the livestock sector, in order to build and sustain this nexus there is need also to build the capacity of smallholder farmers in feed formulation and stock managment.

Addresing these will narrow the yield gap of crops and increase nutrition and at the same time livestock offtake rates will greatly enhanced.

66. Abdelbasit Yagoub, Sudan

Introduction Introduction:

The evolution of the concept of development in the last two decades substantially, and the form of human development defined in a broad sense to Amartya Sen quantum leap in the humanization of the development process where Amartya knows the age of development such as expanding options for humans, through the provision of capacity for individuals, such as the provision of education and health, and to provide opportunities for them to participate in the production process.

Classical theory says nursed output National because he cared for the cause of development, that is, if we have achieved a great rate in the growth of the GNP, we spend on the problem of unemployment. If we spent on the problem of unemployment, we automatically we would have spent on the problem of poverty. The new perception of the meaning of development, says the problem of poverty and nursed it will take care of the national output. Ie if we spent on the problem Fiqrfanna call competencies, skills, and employ all the workforce will become more productive and production and thus GNP, which means building on human development, Meaning is the new development means that man is the goal of development and its device.

The multidimensional poverty which is designed to characterize the cases of severe deprivation faced by individuals at the same time measurement, and identifies the multiple indicator dials for the deprivation suffered by the families in the area of health, education and living standards are more detailed than the human poverty scale. (United Nations Development Programme, 2010)

Known as the northern state as agricultural state of thanks to God endowed him of the great agricultural resources was the breadth of agricultural turf and that nearly 649 km2, or about 86 million acres, part of its territory is valid for agricultural investment (14 million acres), other than forest lands and pastures. And has a population of the northern state according to the latest census in 2008, about 800 thousand people. Agriculture is the backbone in the lives of most or all of the state's population and the most important sectors, most notably in the state's economy, and absorb about 80% of employment in addition to it is the main source of food production, and earns all rural residents who represent 86.2% of the total population of the state living from agricultural activities. (Agricultural renaissance 2012).

Study Problem Study problem:

Contribute to education, health care and social organization in empowering individuals to participate in the growth. The balance between the sectors, especially to take care of the rural sector, and to increase the speed and nature of work opportunities, a key factor in determining the extent of the contribution of growth in income distribution. While governments do not always ensure access services to each individual. This requires the provision of basic social services for all, because these services are the basis for economic growth in the long term, it leads to the formation of workforce enjoys good health and scientific achievement. It is not necessary that the public sector shall secure all of these services, but the state's responsibility is to ensure that every citizen on the basic components of human development. Investment in human development is not only a moral imperative, it is a choice justified because the health, education and social welfare are key factors for

success in a fast-changing global economy dominated the competition. And investment in human development should be directed to the benefit of the poor.

The low level of education is an obstacle to upgrading the capacity of households to small farmers and technological introduction of new technological methods. As well as the health impact on the ability of households to small farmers to work and prosperity, and the evidence suggests a correlation between improved health status and improved social status and economic relationship. The electricity supply can contribute to poverty reduction through increased productivity and expand employment opportunities and lengthen the time allocated to study and improve school results, and to support the price of electricity for agriculture are encouraged to extract large amounts of groundwater for the benefit of small farmers. And expand the supply lines of clean drinking water and sanitation services directly contribute to improving the health and to improve indirectly in productivity. The study focuses on the economic and social impacts of multi-dimensional poverty on small farmers of the three-dimensional analysis of poverty, health, education and standard of living and allows focus on poverty analysis of the environmental aspects of deprivation such as the deprivation of the modern cook, clean water and basic sanitation fuel.

67. Hettie Schonfeldt, University of Pretoria, South Africa

I support the scope of the report and assume that point 2.a will include a balanced diet approach and thus the role of livestock within it.

68. Alpha Oumar Bah, Ministère Environnement Eaux et Forets, Guinea

Un élément clé de la gestion intégrée des risques climatiques dans l'agriculture est la fourniture de produits d'information météorologiques et climatiques pouvant aider concrètement les agriculteurs, les éleveurs et les pêcheurs à gérer activement leurs risques et à améliorer les opportunités à l'échelon local. Le but premier de la gestion des risques de catastrophes est d'accroître la résilience des moyens d'existence ruraux, et de mieux informé en vue d'une planification et d'une prise de décisions tenant compte du climat. Les risques climatiques actuels et futurs touchent de près les agriculteurs et les décideurs qui s'efforcent de répondre aux exigences de développement. Les approches préventives pour la gestion des risques climatiques au niveau national et local peuvent aider les responsables politiques et les communautés à mieux comprendre et à mieux affronter ces risques. Des mesures de réduction des vulnérabilités et de renforcement des capacités pour accroître la résilience sont un bon investissement, quels que soient les changements qui peuvent intervenir aujourd'hui ou à l'avenir. En fournissant des produits adéquats comportant des horizons d'impacts, des avis de politiques mieux informés et des alternatives de gestion adaptées localement en fonction des besoins de l'agriculteur, les institutions affilies telques la FAO aideront à réduire sensiblement les impacts négatifs du changement climatique. Au niveau de la mise en œuvre, l'approche conjugue la promotion de la gestion actuelle des risques de catastrophes au renforcement des capacités (à la fois techniques et institutionnelles) pour l'adaptation à moyen et long terme au climat, intégrant ainsi quatre aspects principaux:

• renforcement des capacités à différents échelons pour interpréter et communiquer les informations climatiques pertinentes, et conseiller les communautés locales sur comment se préparer aux risques et exploiter les opportunités;

• renforcement des capacités institutionnelles et techniques des gouvernements, des organisations de la société civile et des communautés pour l'évaluation des risques et des vulnérabilités locales, et la formulation de plans et politiques de développement sensibles au climat;

• promotion de solutions d'adaptation pratiques et démonstration d'investissements spécifiques au site pour encourager le développement face à la variabilité du climat et aux risques futurs de changement climatique, et

• promotion du renforcement et du partage de connaissances sur le changement climatique par des activités de sensibilisation, de gestion des risques et d'élaboration de politiques sensibles au genre.

69. Andrew Daudi, Malawi

The rains now with Climate Change and depletion of the Ozone Layer are dodgy. When it rains, you find that there is a lot of sunshine and very hot even removing some of the benefits of the water just rained. In Malawi, we have just received heavy rains continuous for three days in Zomba district and this is cause for alarm. Farmers should make sure to grow other food crops in case maize fails. These include sorghum, millets, rice, European potato, sweet potato and plantains. Majority of farmers start planting these crops when they see that there is drought, no. We need to plant now with these rains and when drought comes, root establishment is already in place and will grow with little moisture except rice. Malawi is blessed with a lot of water bodies like Lakes and rivers and we need to take advantage of these waters. Irrigation can play a critical role on food crop sustainability. The other crucial issue on food is the diversification of our eating habits. Maize is foreign, the Center of diversity is Central America and we can diversify our eating habits with these different foods that we have in Malawi and other countries.

Livestock plays a crucial role in food production: Meat, eggs, milk and milk products, manure, hides and skins, sale of the actual livestock for cash to buy food can sustain food and nutrition. Some livestock farmers keep large herds even when there is no grass. Need to sell some stock and maintain a few. The money can be used to purchase food.

Dr. Andrew T Daudi

70. Lizzy Igbine, Nigerian women agro allied farmers association., Nigeria

Food Security must be advanced to include food safety and Nutrition. We can not have food security in the absence of food safety and care of different needs, this is where food safety comes in.

Food safety must be insured with a minimun Nourishment of vital ingridients, vitamins and Proteins. This though looks common are not always available to the downthrodden and the poor.We need specific intervetion, and programs to drive down the effects of poor food chains and alrutition.

There is need to articulate Country wide and regional interventions, towards checkin this menace.

Areas of iintervention must be specific, example, food fortification, school feeding programs, food champions, and food Heros.

Role of women and there Contributions to food security, food safety and nutrition must always be emphasaied, to encourage more women participation.

We may not wait for huge Government Budgets to achive this goal.

71. Max Rothschild, Iowa State University, United States of America

I strongly support the scope of the report and encourage more use of animal source foods in a balanced diet.

72. David Cobon, University of Southern Queensland, Australia

Agricultural systems throughout the world (particularly pastoral) experience extremes of climate variability (precipitation, temperature etc.) on a range of timescales e.g. hydrological cycle of droughts and floods, which is a major driver of pasture, crop and livestock production. However there are regional examples of agricultural decision makers successfully managing climate variability (e.g. in parts of Australia through the use of tools that use scientific understanding of MJO, ENSO and QBO), but globally the uptake of climate services is relatively low. Improving the knowledge and understanding of decision makers of the climate systems that influence local climate and providing tools that are relevant and customised can help manage climate variability and maintain food security. This is one issue and is important for parts A2c, B3, B4, B5abcd.

73. Naveen Kalra, IARI, New Delhi, India

I have 36 years of multi-disciplinary research and teaching experience, worked extensiveli in water and nutrients management, developed various crop simulation tools for agri-production estimates, characterized climate change and its variability through growth and yield of crops and cropping systems, environmental impact assessment, resource conservation technologies. I hereby attach a file to briefly highlight the sustainability concerns and options to ensure higher productivity under intensive agricultural activities.

Sustainability Issues

- Rapid changes in land use and land cover change
- Declining and deterioration of natural resources
- Shrinking farm profitability
- Declining factor productivity
- Nutrient mining and multiple nutrient deficiencies
- Over exploitation of ground water resources
- Soil degradation & soil health issues
- Decrease in soil organic carbon
- Pest buildup and newly emerging pest scenarios due to monotonous cropping systems
- Nutritional insecurity
- Decreasing biodiversity

- Environmental problems

Climate change & its variability

- Climate variability is significant
- Extreme climatic events occurrence has increased
- Climate change is noticed, and the growing rate has become faster
- The need of evaluating impact of impacts of inter-annual climatic variability/climate change on agriculture
- There is a need to identify adaptation strategies to sustain crops' yields under changing climate
- Need to identify mitigation strategies for reducing GHG losses, sequester carbon, evolve methods to enhance nutrients' use efficiency
- There is a need to work out socio-economic and bio-physical consequences of climate change and its variability
- Need to develop integrated assessment model (crop- and dairy- integration)
- Sustaining Crop Production under Extreme Climatic and Climate Change events (vulnerable regions, mitigation and adaptation strategies)

General concerns of farmers with rice-wheat cropping system and possible remedies

Problems:

- Decline in rice-wheat productivity
- Reduction of partial factor productivity of N, P and K inputs
- Contamination of ground water and decline in water table depth
- Delay in sowing of wheat due to late harvest of paddy or excess soil moisture after harvest of paddy
- Introduction of newer insects/pests in rice-wheat cropping system due to reduced tillage (zero & minimum tillage, bed planting)
- Reduced soil nutrients' availability (primary, secondary and micro-nutrients)
- Frequent occurrence of extreme weather phenomenon and disasters

Remedies (through soil health service)

- Nutrient management
- Water Management

- Integrated Pest Management
- Adoption of suitable tillage methods for rice and subsequent wheat

Needs for Sustained and Productive Agriculture

- Achieving sustained agricultural production and restoring soils' health for future food supplies – solutions, plans and actions
- Enhancing soil organic carbon (crop management, conservation tillage, organic amendments and pasture management)
- Maintaining favourable soil structure, the key to sustainable agro-ecosystem management
- Management effects of agri-related activities on soil environment changes (sustain physical, chemical and biological health)
- Approach- Soil health indicators (derived on the basis of key biological, chemical and physical) for on farm soil health assessment and identifying options for sustenance
- Soil constraints analysis and remedies for sustained production

Products and services for sustainable agriculture

Advanced Crop Nutritional Products

- Customized/fortified fertilizers (region and crop specific nutrients' needs, all in one)-enhanced nutrients' uptake efficiency, environmental friendly, convenient to farmers
- Foliar nutrition service for enhanced and sustained agricultural production and bio-fortification (enhanced zinc and iron contents in the economic produce)
- Bio-fertilizers (Rhizobium, PSB, VAM, Azotobacter, Sea weeds, Plant Growth Promoters)
- Value added (macro- and micro-nutrients through use of cheaper materials, bio-fertilizers..) bio-compost
- Slow release fertilizers (coating of urea, NP, NPK with neem, zinc, sulphur, gypsum and silica, Condensation Polymers, Polymer coated, Gel based, Super granules, Zeolite based)
- Decision Support System for Soil Test Based Nutrients Advisory service
- Humic and Fulvic acid as soil conditioner and nutrients' carriers
- Nano-based Fertilizer Products
- Integrated Plant Nutrient Management (service network mode)

Insect-pest dynamics

- Changing insects-pest scenarios under intensive agricultural activities
- Integrated Pest Management Systems/Designs for sustained production
- Pest forecasting, Yield Loss Assessment and Control Options
- Bio-pesticides

On-Farm Water Management

- Choice of irrigation systems and irrigation scheduling for crops and cropping systems for sustainable production
- Fertigation products
- Conjunctive Use of Poor Quality Water

Resource Conservation Technologies

- Zero/minimum tillage
- Compaction
- Laser Land Leveler
- Fertilizer metering cum Seed Drill
- Variable Nutrient Applicator (part of precision agriculture)
- Protected agriculture
- Organic farming
- Bio-fertilizer and bio-pesticides
- Soil conditioners , Soil/plant water conservation products
- Tools for reducing pre-/mid-course/post- harvest losses
- SRI

Organic Farming Methods

Weather *(synoptic, medium- and long-range weather forecast, extreme weather, episodic/disaster events)* **based Agro-Advisories – e-tool for knowledge dissemination**

Crop Acreage &Yield Forecasting Tools and Market Intelligence System *(use of remote sensing, GIS, crop simulation models and bio-physical and socio-economic layers)*

Soil Health Assessment and Sustainable Agriculture

- Minimum characters required for physical, chemical and biological indicators development
- Integration of these indicators for overall soil health index
- Use of these indicators/SHI for
    - Soil capability classification
    - Sustainable Agri-management strategies
    - Crop choices and resource management options
    - Nutrient management (CF, IPNM, Farmers' Engagement etc)
    - On-farm water management
    - Degraded lands

- Industrial effluents and solid wastes management
- Other Agronomic and inputs management

- Business model (soil health card and related agro-advisory services)

Use of crop simulation models to identify agro-management options for sustainable agriculture

- Crop models viz. DSSAT, INFOCROP, APSIM have been successfully employed over the globe for agri-production estimates, natural resource management, climate change/its variability characterization through growth and yield of crops and cropping systems, assessing yield loss due to insects/pests built up, yield gap analysis and options to bridge down the yield gap, linking with remote sensing tools for operational yield forecasting, carbon sequestration options and green house gases emission in crops and cropping systems, productivity centers shifting under climate change and other bio-physical & socio-economic scenarios, rapid land use and land cover change impact analysis, inter-sectoral interactions

74. Esther Masvaya, Zimbabwe

Smallholder farmers in sub-Saharan Africa (SSA) are negatively affected by continued low agricultural productivity, deteriorating soil fertility, dysfunctional input and output markets and the unfavourable macro-economic environment. Per capita food production in SSA lags behind that of any region in the world and with the advent of climate change impacts, SSA will be the worst affected global region in terms of food security in the already risky operating environment. The challenge with smallholder farming is to employ techniques that increase productivity while at the same time increasing the soil fertility i.e. the soil's ability to supply crop nutrients.). Livestock management has an impact on nutrient recycling and use efficiency on farms. Crop residue and manure use as soil fertility management options; draught power in land preparation and cultivation practices, and financing the purchase of inputs in crop production through livestock sales are other major sources of interactions between crop and livestock subsystems.

75. Paul Kazaba Université de Lubumbashi, Democratic Republic of the Congo

Mon message clé :

"L'agroforesterie : une piste prometteuse vers des systèmes de production durables et la sécurité alimentaire "

Dans l'exploration des pistes vers des systèmes de production durables, je souhaite que l'étude envisagée porte un regard particulier sur la pratique de l'agroforesterie, au vu des multiples bénéfices économiques, écologiques et sociaux qu'elle génère et de son potentiel de développement, notamment dans les régions les plus touchées à la fois par la déforestation, le changement climatique et l'insécurité alimentaire.

76. Benjamin Graub, FAO, Italy

The overall structure of the proposed report seems logical and useful for the aims of the report

I especially liked:

- Critical overview and discussion of the current projections including their underlying assumptions
- Focus on practices and their potential roles in pathways towards sustainable agricultural development – especially the mention of agro-ecological practices. Based on the experience in regards to the International Symposium on Agroecology for Food Security and Nutrition (in Sept. 2014 at FAO), agroecological approaches are seen to hold a very large potential to contribute to sustainable agricultural development
- The incorporation of policies and enabling environments necessary for sustainable agricultural development

We would like to point out that:

- The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) had a similar focus and should be considered in the writing of the HLPE report
- Regarding the "objectives and elements of sustainable approaches to agriculture" (pg. 2) should also take into account the aspect of resilience.
- That apart from considering the specific sustainability challenges for "various farm sizes", also other characteristics of the farms should be considered. Especially, with regards to FAO's on-going work on family farming, the specific sustainability challenges of family farms should be considered.

77. The International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF) , Switzerland

This comment to the HLPE is submitted by the IUF*, the global trade union federation representing workers in agriculture, food processing and in the hotel, restaurant and catering industries.

The IUF welcomes the consultation by the HLPE on the scope of the report it has been asked to prepare for the CFS on sustainable agricultural development for food security and nutrition, including the role of livestock, which will feed into CFS debates at the CFS Plenary session of October 2016.

The IUF's affiliates represent workers throughout the livestock sector - on livestock farms (animal rearing), in poultry, in dairies and in meat slaughtering and processing. Some affiliates represent workers in more informal livestock sectors.

We call on the HLPE to include working conditions in the livestock sectors as a specific area to be addressed in the report they will prepare for the CFS.

Globally the meat sector alone involves over 3 million workers with many millions more in dairy and pastoral work. Information we have received from our affiliates indicates that the workers often face very poor working conditions. We have noted the following trends in the meat industry:

1. Industry reliance on a casual or precarious workforce, with a predominance of migrant and contract workers. The recent horsemeat scandal highlights the issues around multiple layers of outsourcing and precarious jobs as does the report of extensive Campylobacter contamination in UK

poultry. Our affiliates are fighting to combat both discrimination against migrant workers and precarious work and we can provide concrete examples of good practice on these issues;

2. The hazardous nature of jobs in the meat packing industry (see below for more details);

3. Major retailers placing pressure on industry processors and packers to lower costs and the effect this has on wages and conditions;

4. The lower wages and conditions in the poultry industry compared to the red meat industry.

Occupational health and safety for livestock workers in meat processing

Our affiliates report serious widespread occupational health and safety issues in the meat processing sector. Many of these are related to line speeds. Workers suffer from crippling repetitive strain injuries. These type of injuries affect in particular women workers in the meat sector.

For many years our affiliates in Brazil have campaigned for better legislative protection for workers in the meat industry. Recently further significant progress was made when our regional organization together with our Brazilian and Argentinian affiliates won commitments from the two governments to work together to to promote cooperation and assistance in government labour policies and on the elimination of human trafficking.

The agreement also provides for union/government coordination in promoting freedom of association and in strengthening collective bargaining and establishes a steering committee to monitor progress in the bilateral work.

Occupational health and safety issues are by no means confined to the global South. A new study released in 2014 by the National Institute for Occupational Safety and

Health (NIOSH) confirms what workers in the poultry industry have been saying for decades - it is among the most dangerous places to work in America.

The report concluded that:

- 42 percent of workers had evidence of carpal tunnel syndrome;
- 41 percent of workers performed daily tasks above the threshold recommended by industry experts;
- 57 percent of workers reported at least one musculoskeletal symptom.

We strongly urge you to ensure that working conditions in the livestock sector are addressed in the HLPE report and in particular:

- the situation of vulnerable migrant workers, and
- occupational health and safety issues.

The IUF believes that the right to food/food security of vulnerable migrant workers in the meat sector is undermined by their poor working and living conditions and that poor occupational health and safety for all workers in the sector puts at risk their health, well-being and ability to earn income to feed their families.

The IUF and its affiliates are ready to assist the HLPE project team and to supply information on living and working conditions for livestock workers. To this end we have nominated Dennis Olson to join the livestock project team. He has already submitted the application form and his CV.

Yours sincerely,

Ron Oswald

General secretary

*The International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF) is an international federation of trade unions representing workers employed in agriculture and plantations; the preparation and manufacture of food and beverages; hotels, restaurants and catering services; all stages of tobacco processing. The IUF is composed of 390 affiliated organizations in 125 countries representing a combined membership of around 2,6 million.

78. Michael Roberto Kenyi Legge, South Sudan

Agricultural Development Programme Proposed Master Plan(2015-2017) in South Sudan

Executive Summary

The proposed Master Plan for Agricultural Development has been a joint effort of the author. The author reviewed secondary information and addressed areas such as the formulation of a draft vision statement, detailed problem analysis for agricultural production, marketing and community mobilisation and a conflict analysis using the Local Capacities for Peace (LCP) approach. Further results are the formulation of long-term objectives and logical framework until the end of 2017.

Inadequate agricultural production, marketing and income generation continue to be the core problem of the existing situation in the agricultural sector in South Sudan. Root causes for this core problem mainly stem from the long lasting civil war and the neglect of the South Sudan by regimes in Khartoum before and after independence, including a weak human resource base, low organisational capacity of most organisations involved in agricultural development, a desolate road network posing major obstacles to regional and cross-border marketing of agricultural produce, and communities which have been affected by decades of relief supply (dependency syndrome) and which are to some extent resistant to change processes.

Major potentials - as a basis for long term planning - are the favourable climatic conditions for farming coupled with good soil fertility in most parts of the South Sudan, the traditional knowledge and skills of local farmers and relative peace in the area which increases confidence of the people and which encourages voluntary return of South Sudanese refugee populations in the neighbouring counties, namely the D.R. of Congo, Kenya, Ethiopia and Uganda.

The long term vision for the programme is to develop:

A self-sufficient sustainable and gender sensitive agricultural production and marketing system that enhances economic growth, equity and access to essential social services, a good standard of living and a secure and peaceful environment.

The overall goal for agricultural development remains “increased agricultural production and income generation”. To achieve this goal three core strategies and two supporting strategies have been designed, reviewed and further developed:

Core strategies:

A. **Improve agriculture and production of marketable surplus through promotion of improved agricultural techniques and practices as a continuous process**

B. **Developing systems and structures for improved and sustainable marketing of local produce**

C. **Strengthening community mobilisation, participation and ownership in the agricultural development programme**

Supporting Strategies:

A. **Enhancing institutional capacity of National and State Ministries of Agriculture and County Agriculture Departments (CADs) in the ten states and seventy Nine Counties**

B. **Improving and facilitating essential logistical support for the Agricultural Development Programme**

The Core elements of the strategy for agricultural production are a) to facilitate and promote a sustainable supply of essential agricultural inputs (e.g. through the promotion of local production of seeds and tools) or to sell quality inputs to farmers on cost recovery basis, and b) to improve farmers' knowledge, skills and agricultural techniques by building on local knowledge and introducing appropriate new technologies. CAD will play a central role in the implementation of this strategy as well as the active involvement of communities.

The marketing strategy remains a centre piece of the Agricultural development programme. Goal is to develop systems and structures for improved and sustainable marketing. That involves facilitation and contribution to the creation of favourable market conditions such as advocating for an improvement of the main road network (trunk roads), which is mainly the role of national/ state government Ministries of Agriculture in liaison with the other Ministries. Other sub- strategies include the promotion of marketable agricultural surplus facilitated through the creation of improved storage facilities and profitable agro-processing units, the establishment of appropriate and functioning market information systems throughout South Sudan and the promotion of co-operative societies; self help groups and capable individuals engaged in marketing and marketing related activities.

The implementation of the two previous strategies will be doomed to fail if they are not supported by communities and community-based organisations and structures. This is why Community mobilisation, participation and ownership became a core strategy. Key elements of this strategy are to strengthen and qualify the community based implementation structures of the programme, particularly the Community- Based Extension Workers (CBEWs) and contract farmers, to improve the systems and methodologies for community mobilisation, to contribute to the capacity building of community structures (Boa Development Committees) and local implementing organisations (local NGO and CBOs). It is understood that these objectives can only be achieved in close networking with other actors in rural development as well as the civil society organisations.

Women have received a higher priority in the new agricultural development programme. Their active participation in the decision making process as well as in programme implementation is seen as a key not only for improved community mobilisation but also for improved agricultural production as women share more than 50% of the workload in the agricultural sector.

Besides community mobilisation, an enhanced institutional capacity of CAD and improved sustainability of essential logistical support services (mainly transport) are seen as key conditions for

a successful programme implementation. Institutional development of National and State Ministries of Agriculture and CADs should have a Human Resource Development policy in place and implemented that facilitates the provision of quality services, to enhance management capacity at all levels, to improve systems for planning and monitoring and to increase partnerships with collaborating agencies from within and outside South Sudan.

It is expected that the agricultural development programme shall make a significant contribution to a better quality of life for the people in the ten states of South Sudan as well as to contribute to social and economic development in other sectors. This programme cannot be seen in isolation to the other efforts for building the Nation of South Sudan including the building of the educational system (including adult education), capacity building of civil society organisations and grass-root initiatives, enhancing the capacity of administration and governing structures as well as rehabilitating the poor social and economic infrastructure.

The agriculture programme strongly builds on the expectation that only a joint effort of the main stakeholders concerned will pave the way to achieve the set objectives. It is a necessity that the main stakeholders better understand their role in this process and the roles of the other actors. The current approach foresees service delivery on the basis of sustainability, i.e. inputs will be provided on a credit or cost recovery basis. This approach will have to be maintained and strengthened.

The agricultural programme is implemented within a conflict and/or anticipated peace environment. A conflict analysis, carried out as part of this programme, revealed actual and potential fields of violent conflict, the most prominent being the conflict between pastoralists (who are in host states as IDPs) and farmers. This will require awareness building through Local Capacities for Peace approach as well as development of capacities for impact monitoring.

If successful, the agricultural development Programme shall become a model for the implementation of food security pillar in South Sudan vision 2040.

79. Botir Dosov, Uzbekistan

The proposed scope and building blocks of the report are well structured and imply comprehensive and consistent approach to the study. It covers multidisciplinary objectives and builds on cross-sectoral analysis. The outputs of this study would lay basis for systemic and set of programs, which would eventually contribute to out-scaling food security and nutrition globally and particularly addressing the needs of poor, vulnerable and undernourished segments of the population, while considering current and emerging challenges.

With given exploring pathways the study seems to review broad avenues of existing knowledge and ongoing studies and undertake interdisciplinary leanings, models and foresight tools. However, the study having ambitious goals does not supposed to start from fundamental conceptualization and rationale. Many works have been done and are ongoing having somehow similar objectives. Individuals and organizations does not live in a parallel worlds, they face the very existing and emerging challenges globally and locally, and therefore whatever and however they endeavor to tackle those challenges, they need to interact and learn from each other.

Indeed, the consequences of climate change have a negative impact on agriculture, which has already been affected by the severe outcomes of the recent global economic crisis. In addition projected population growth, particularly of the urban population, will increase demand for food and prices, which in turn will result in even greater use of limited natural resources. Ultimately, these problems are a particular threat to vulnerable groups, including to people with low incomes. Thus,

societies face the challenge of solving these problems, and it is necessary to take action to ensure peaceful, sustainable development and food security.

Considering these challenges, Agricultural Research system globally sets as primary objectives addressing the issues in order to improve agricultural productivity, increase the quality and quantity of food through intensification and diversification of sustainable agriculture and to develop the knowledge for the efficient use of natural resources, mitigating the negative impact of the consequences of climate change. A priority cross-cutting issue is addressing the needs of vulnerable and low income groups minimising projected adverse effects of the above mentioned threats.

In this regard, joint efforts are undertaken by Consultative Group on International Agricultural Research (CGIAR) on so called System Level Outcomes:

- reducing rural poverty. Agricultural growth through improved productivity, markets and incomes has shown to be a particularly effective contributor to reducing poverty especially in the initial stages of development;
- improving food security. Access to affordable food is a problem for millions of poor people in urban and rural communities and it requires increasing global and regional supply of key staples and containing potential price increases and price volatility;
- improving nutrition and health. Poor populations suffer particularly from diets which are insufficient in micronutrients affecting health and development, particularly in women and children;
- sustainable management of natural resources. Agriculture demands better management of natural resources to ensure both sustainable food production and provision of ecosystem services to the poor, particularly in light of climate change.
- To achieve those SLO, several CGIAR Research Programs CPRs have been launched as the main CGIAR mechanism to address emerging challenges for agricultural development.

CRP on Dryland Systems aims to improve food security for the rural poor, protect the natural resource base, and empower small-scale farmers and pastoralists in dry areas by pursuing new technological, institutional, and policy options.

CRP on Humidtropics seeks to transform the lives of the rural poor in the humid lowlands, moist savannas, and tropical highlands.

CRP on Aquatic Agricultural Systems aims to help low-income smallholders overcome the constraints that prevent them from fully benefiting from diverse aquatic agricultural systems.

CRP on Policies, Institutions and Markets will identify policies and institutions necessary for smallholder producers in rural communities, particularly women, to increase their income through improved access to, and utilization of markets.

CRP on Livestock and Fish This program aims to increase the productivity of livestock and fish farming in selected developing countries to enhance the nutrition and increase the incomes of poor and hungry households.

CRP on Nutrition and Health is designed to fill the existing gap between agricultural development and its unfulfilled health and nutritional benefits among poor farmers and consumers in developing countries.

CRP on Water, Land and Ecosystems examines how we can intensify agriculture while protecting the environment and lifting millions of farm families out of poverty.

CRP on Forests, Trees and Agroforestry seeks to enhance the management and use of forests, agroforestry, and tree genetic resources across the landscape from forests to farms for the benefit or poor people, particularly women and other disadvantaged groups.

CRP on Climate Change, Agriculture and Food Security offers new options for adapting to the emerging impacts of climate change and mitigating its effects through a "carbon-friendly" agriculture that also strengthens food security and reduces poverty.

Thus, the study on Sustainable agricultural development for food security and nutrition, including the role of livestock and CRPS would mutually be benefited from inter-study consultations.

80. Christy van Beek, Alterra, Wageningen University and Research Centre, Netherlands

Soil fertility decline is an important initiator of land degradation leading to, eventually, loss of productive lands. It thereby is one of the major challenges to be addressed in order to meet the demand for agricultural products. Past interventions have focussed on either i) improving the supply of nutrients through (different forms of) fertilizer policies, ii) increasing the demand of nutrients through (local) demonstrations and iii) increasing the efficiency of nutrient use through soil and water conservation measures. All of these approaches can be successful in their context, but none of them has been able to halt or revert the current decline of soil fertility in many smallholder farming systems in (especially) SSA. Innovative approaches are needed that integrate access, demand and efficiency of nutrients. Notably, through globalization and urbanization the polarization of nutrients (i.e. the accumulation of nutrients in one site and the depletion of nutrient in another site) is expected to increase, with detrimental effects on both sites. For more information see the brochure in the attachment

(http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/FGI%20booklet%20201411_light%20version_1.pdf)

81. Clara H. Whyte, Canada

Dear Sir or Madam,

Thank you for your answer.

Please find attached my contribution [*as tracked-changes, Ed.*] to the HLPE e-consultation.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/HLPE%20E-Consultation%20CWhyte%20Jan2015.docx

Thank you for confirming the proper reception of the attached document.

I wish you a nice week.

Regards,

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Clara H. Whyte, M.A.

Economist and Policy Analyst

Biodiversity Conservation and International Policies Vancouver, BC, Canada

82. Belen Yuste Bros, Spain

Dicen que presentarse es de buena educación, mi nombre es Belén una ciudadana mas de este "fantástico mundo que estamos modelando", apenas tengo estudios sobre agricultura o alimentación, pero me parece un pilar básico de las sociedades actuales y del planeta tierra.

Empezare por el punto d): Incluirá el entorno propicio necesario para activar o acompañar la transición: el papel de las políticas y herramientas públicas para promover y facilitar la transición hacia sistemas sostenibles. Este punto es de vital importància; en los gobiernos reside el derecho o la libertad del capital para hacer y deshacer, cuando me refiero a capital és en concreto las empresas y comercios que marcan las reglas del juego de la alimentación. Desde que empresas como “cocacola” descubrieron la psicología del condicionamiento y nos modelaron para que las bebidas de refrescos nos gustarán e incluso nos generan adicciones, el condionamiento hacia el mercado alimentario ha ido en un aumento agresivo. Actualmente los supermercados ofrecen gran cantidad y variedad de productos, si analizamos la capacidad nutritiva de estos, apenas existe o no la necesitamos debido a la vida sedentaria que tenemos en los países capitalistes. Este consumo desmesurado esta suponiendo una gran huella ecológica por ciudadano, un desarrollo de enfermedades físicas y psicológicas condionadas por la mala alimentación, el mal uso de estos o los alimentos prefabricados. Es obligación y responsabilidad de los gobiernos generar leyes de control sobre estos productos tanto en la producción, venta o exposición a través de la publicidad, educar a su población en hábitos alimentarios, y por tanto formar a sus funcionarios profesionales en estos ámbitos, ya que siguen existiendo muchas leyendas debido a la falta de renovación de conocimientos.

Por otro lado, no puede ser que estemos siendo conocedores del aumento de la industria cárnica y avícola, de las condiciones de crianza y matanza de estos, y además estemos proporcionando este producto a la población sin ningún tipo de control o educación, cuando muchos estudios científicos demuestran que puede ser contraproducente el uso de alimentos de origen animal en nuestra alimentación.

Así pues, ustedes intentan generar nuevos informes sobre desarrollos agrícolas sostenibles, cuando tenemos el gran dueño y enemigo del mundo "Los transgenicos de Monsantos", que incluso aun estando prohibidos en Europa puedes encontrar productos de esta compañía usadas en huertos familiares de Europa. Además de la pobreza, contaminación y explotación que ha generado esta compañía en poblaciones del todo el mundo, y aun no nos hemos propuesta cerrar esta empresa que cada es mas fuerte y difícil de desmantelar.

Aunque el tema es extenso, y solo he enfocado una parte del problema me gustaría entender o saber, como en un proyecto en TANZANIA de la F:A:O con sede en Roma (algo que no acabo de entender), puede impulsar la utilización de Fertilizantes y Herbicidas en el cultivo agrícola de los campesinos. Muy a pesar y a mi ignorancia, entiendo que tal vez allí existan plagas muy fuertes que puedan destrozar las cosechas, pero también creo que es muchísima la gente que esta desarrollando huertos y cultivos ecológicos, como se hacia antaño, pero que como siempre al no hacer uso de las etiquetas ecológicas y BIO que proporciona la UNIÓN EUROPEA quedan en la sombra.

En conclusión esta muy bien la existencia de la FAO, los proyectos que genera y la gente que trabaja en ella, pero no pueden negarme que el sistema burocrático de la FAO no es nadie en comparación con los Dueños del Mundo, y aunque ustedes generen proyectos de crecimiento en países subdesarrollados, por otro lado el capitalismo y el neoliberalismo esta creciendo y generando pobreza estructural, des-virtualizando los hábitos alimentarios, y generando presiones para para la

Seguridad alimentaria y el buen desarrollo de los cultivos agrícolas. Se genera suficientes alimentos para la población mundial, pero se gestionan muy mal los recursos existentes, por una simple razón, los recursos les pertenecen a ellos y nuestra educación también.

Belén.

83. Patrick Binns, Westbrook Associates LLC, United States of America

The HLPE's assessment of sustainable agriculture and the role of livestock should focus attention on identifying regionally appropriate integrated soil fertility management (ISFM) best practices that can restore and maintain soil nutrients and build soil structures needed for efficient water retention and use. With the growing significance of animal protein in global diets; HLPE should emphasize that sustainable, intensified cultivation of livestock fodder will require diversified crop rotations that provide biological nitrogen fixation and interrupt pest pressures; and optimal allocation of crop residues for livestock feed, as ground cover and as organic inputs for the beneficial soil biota that are essential for crop productivity and health.

The degree of sustainability that can be achieved will depend upon how effectively farmers leverage agro-ecological practices that replenish soil nutrients and harvest and hold fresh water resources. The recovery and use of livestock manures as organic fertilizer for farm lands will also be critically important for success. Given the value of manure as soil nutrient inputs, this assessment must consider the scale of livestock operations that are most conducive to high efficiency nutrient management cycles. The dichotomy between the impacts and complexity of concentrated animal feeding operations (CAFO's) relative to smallholder crop and livestock farming requires particular attention. This assessment should also discuss how innovative farm-to-market value added food processes could improve the economic competitiveness of smallholder livestock operations.

In assessing integrated crop and livestock systems that are most appropriate for smallholder and intermediate scale farmers; HLPE should give special attention to the "Push-Pull" farming practices that are delivering multi-functional benefits of increased crop and fodder yields; biological nitrogen fixation for soil nutrient inputs; and unique pest and weed biological control benefits. Such agro-ecological methods are indicative of the potentials for harnessing powerful biological processes that can enable increased full farm productivity yields with significantly reduced or eliminated use of synthetic fertilizers and herbicide/pesticide inputs.

It is important for the HLPE to draw attention to the critical need for increased agricultural research efforts to understand and unlock the enormous potentials of agro-ecological farming techniques and technologies. The need for research and development is particularly critical in the area of identifying and producing biofertilizers that are sourced from beneficial soil biota that have substantial capabilities to enhance plant growth and resilience to biotic and abiotic stresses.

The assessment must also include recommendations on how to build the capacities of farmers at all scales and geographies to have access to the knowledge, technologies and financial resources needed to employ agricultural best practices. In considering the options and time frames for action in building sustainable farming capacities; it will be important to acknowledge the imminent ecological threats of climate change and the long term environmental damage of excessive and inefficient applications of chemical inputs that adversely impact agricultural landscapes and fresh water and marine fisheries.

Finally, in preparing a comprehensive assessment of our complex global food security challenge; the HLPE should strive to clearly articulate and concisely recommend specific strategies and actions that could be adopted by governmental policy leaders, private sector decision-makers and agricultural sector stakeholders. While there are many scientific and social-economic factors and disciplines involved in determining the 'best ways forward,' the HLPE assessment should provide a report that will catalyze decisive actions by nations, businesses and millions of farmers around the world. Thank you for the opportunity to provide my comments and recommendations to this critically important project.

With best regards,

Patrick Binns

Westbrook Associates LLC

Seattle, WA USA

84. Md. Kamrul Islam, Cotton Development Board, Bangladesh

Dear Sir,

In addition to my previous discussion that included at serial number 59, I would like to discuss on prospects of cotton for Sustainable agricultural development for food security and nutrition, including the role of livestock in Bangladesh.

Cotton (Gossypium sp.) is an important cash crop in Bangladesh that provides fibre, edible oil and oil cake for feeding the livestock. It is the main raw materials of Textile industry. Annual requirement of raw cotton for textile industry of Bangladesh is estimated at 5.1 million bales (1 bale=182 kg). Around 2-3% of the national requirement is fulfilled through the local production from 42 thousand hectares of land. Without impeding the food crop production in main cultivable areas, Bangladesh has the opportunity to grow cotton in non-conventional area.

CDB was established under the Ministry of Agriculture in 1972. CDB is the only government organization in Bangladesh where research, extension and seed production are done under same management system. As such cotton farmers in Bangladesh can get the latest variety and technology in time. Regular training is arranged for the farmers, staff and officers to disseminate the improved technologies. In addition to that CDB also help in marketing of seed cotton. Every year, before the harvesting of cotton CDB organizes meeting with the participation of farmers, private ginners, ministry representatives to fix the price of seed cotton comparing the international market price. That allows all of the cotton growers across the country to get the same price for cotton. In addition to that CDB provide hassle free loan to the farmers from its own revolving fund. These six activities are performed under the same management system to fulfill the CDB mission. CDB mission is to reduce the import dependency of cotton by increasing domestic production. Over the past few years the local production is in increasing trend though the area is not increasing that is due to the integrated efforts of CDB activities.

Cotton improves food security in many ways. Framers can earn extra money from intercropping one or more crop. It creates employment opportunity particularly for rural women from sowing to harvesting. Usually, women feel comfort to work at cotton field as it is dry land farming. From harvested boll we get 40% lint or fiber that used in spinning mill and 60% seed. Seed contain 25% edible oil and 75% oil cake. Presently oil is extracted and marketed in Bangladesh while the oil cake is used for fish/animal feed.

Additionally, we have the opportunity to promote cotton under changing climate as an adaptation strategy. First of all it is drought tolerant, its tap root can uptake water from deeper layer. Cotton was grown successfully at the Barind tract that is the drought prone area of Bangladesh. Secondly, it is tolerant to salinity. An experiment conducted at Sanor gacha, Jessore a saline area in Bangladesh showed that with the soil salinity increased to 30 dS/m at 45 days due to lack of rain and cotton performed well in there.

Presently CDB has been implementing an intensive project to expand cotton cultivation in 1 lac ha of land as a part of its vision 2021 in the drought prone, char, hill slope and hill valley saline as well as tobacco growing areas. To make cotton cultivation profitable to the farmers in those areas as well as climate change mitigation strategy CDB has been organizing its research management system through the involvement of different stake holders. One notable experiment conducted by CDB in 2013-2014 was the integrated use of organic and inorganic source of N in cotton cultivation. The results revealed that 30% of N requirement of cotton can be replaced by organic sources.

From the above discussion, it is evident that cotton can contribute in food security, climate change adaptation and as well as livestock production. While the animal manure can also be use at cotton field that will lead to the sustainable development in agricultural sector in Bangladesh. The Gobeshona Conference for Research on Climate Change in Bangladesh was held on 07-11 January 2015 at Dhaka, Bangladesh with the participation of national and international multi-stakeholder including policy makers, donors, researcher, and development worker. I deliberated oral presentation at this conference stating the above discusses issues. The presentation is available at:

http://gobeshona.net/wp-content/uploads/2014/09/Effect-of-Organic-and-Inorganic-Source-of-N-on-Cotton-Yield-.pdf

Thank you.

With best regards,

Dr. Md. Kamrul Islam

Senior Scientific Officer

Cotton Development Board

85. Nico van Belzen, International Dairy Federation (IDF), Netherlands

The International Dairy Federation (IDF) welcomes the opportunity to contribute to the new HLPE project “Sustainable agricultural development for food security and nutrition, including the role of livestock”. Dairy and other livestock products are important for food and nutrition security, because livestock can convert materials that are inedible to humans, such as grass and leaves as well as residues of food and biomaterials, into high-quality, nutrient-rich foods.

IDF appreciates the process that CFS is undertaking, but seeks clarification of the overall process. It would appear that an expert steering committee is being established to draft the report as per the agreed scope of work. The e-consultation is seeking comments on the scope of the project. Does CFS intend to continue to seek input throughout the drafting stage? This e-consultation appears to be limited to the scope of the work. IDF believes that it is critical that ongoing consultation is undertaken as the breadth of the proposed report is very wide and it will be difficult for individual experts to provide detailed input across the chain. This can be achieved by developing a clear consultation process that will enable wider views to be captured while the report is being developed. Communicating this process will also help groups determine how they can actively contribute and in what timeframe.

IDF represents the global dairy sector and ensures the best scientific expertise is used to support high quality milk and nutritious, safe and sustainable dairy products.

IDF is committed to furthering current knowledge on a wide range of issues, including sustainable development, health and nutrition, environmental impacts, methods of analysis, farm management, animal health and welfare, dairy science and technology, food hygiene and safety, food standards, dairy policies and economics, and marketing. IDF can access specialists across the global dairy value chain and has already contributed substantial input to areas of direct relevance to this CFS work – e.g. environmentally sustainable nutrition, the FAO's work on livestock GHG emissions and LCA methodology to name a few. IDF is also a signatory to the global Dairy Sustainability Framework and has access to the work being undertaken in sustainability through all of its members.

The work undertaken by IDF involves a vast number of technical specialists and scientists globally. This is a tremendous human resource combined with a comprehensive library of previous work and is one we would like to offer for the purposes of this HLPE initiative.

As the scope of the project is broad, IDF is extremely well positioned to support the work of the HLPE. IDF has already supported the nomination of four experts with diverse backgrounds from three continents. In addition we would like to propose providing access to wider resources and potential consensus positions from the global dairy sector through a nominated IDF representative, who could collate IDF's input during the report drafting process.

The nominated individual is Ms Laurence Rycken, MSc Nutrition (IDF staff). Her contact details are available from the email address used in the submission form.

As an initial comment on the draft scope (2a), we would like to advocate a food-based rather than nutrient-based approach when addressing nutrient deficiencies, obesity and chronic diseases related to nutrition.

We look forward to collaborating with you in this important work and trust you will accept IDF's nominated contact point and include Laurence in the development of the report so that IDF can provide input at appropriate times.

86. Bookie Ezeomah, United Kingdom

The sustainability challenges for crop and livestock-based agricultural and food systems, including pastoral systems, in diverse agro-ecosystems and for various farm sizes, taking account of threats to the sustainability of these systems, including animal diseases, pest and diseases, and energy needs.

An agricultural system is sustainable when it is resilient and makes use of renewable sources of inputs and it adopts techniques which do not adversely affect the environment. Agricultural systems consisting of crops and livestock are characteristic of many small holders in developing countries. This provides a means of securing food and nutrition for the farming household as well as a providing a source of income. However, sustainability challenges in this system arise when input-output management practices are not utilised efficiently. For instance, when animal waste (such as cow dung), which should be applied to improve soil fertility and structure is burnt as a source of cooking energy because of the lack of wood or when plant remains which should be left as mulch are fed to animals whose dung is not return to the land, there is an interruption in the sustainability cycle which the crop-livestock system should support. Also when inputs are genetically modified and patented making farmers unable replant seed, but continuously depend on seed producing companies, there may be no sustainability and resilience, and shocks such as failed yield will adversely affect this system.

Another progressive challenge, as experienced in Nigeria, is that of conflict between pastoralist from Niger, Chad and Cameroon and Nigerian smallholder farmers, where on many occasions, cattle are left to graze on farmers' fields resulting in tremendously loss of yield and death of farmer and/or pastoralist in some cases. There animals cross boarders and may be carriers of various diseases which may cause harm to crops, livestock as well as humans. The most affected are the smallholder farmers who cannot secure enough capital to build fences around their fields.

Another threat to the sustainability of the crop-livestock system is climate change. Livestock such as cattle produce methane which contributes to green house gases, cutting down trees to establish farms also contributes to the accumulation of green house gases. Adopting climate smart agriculture systems such reforestation, integrated agricultural systems such as the rice-fish mixed farming and alley cropping (Silvopasture) can ensure the recycling of nutrients within the crop-livestock system.

Pathways towards sustainable crop and livestock-based systems, and options for managing the transition to sustainable systems:

Most traditional farming systems are characterised by a mixed cropping/farming model which provide a family farming with a variety of produce (crops and animal) from a given piece of land. Agro-forestry innovations such as silvopasture provide a mean of integrating crop and livestock whereby livestock are raised together with tree (such as fruit or legume trees) which provides some forage for the livestock, wood for the farmer and fruits for sale. The limitation with this model is its labour intensive nature and the waiting period between the planting of trees and reaping of yields. However, if as part of the transition plan, off farm jobs or alternative annual cropping can be achieved, silvopasture is still a sustainable option.

Barriers to change, including in institutions, organizations, policies and governance, and potential options to overcome them.

In implementing any agricultural development programmes or introducing innovations for change, especially in the emerging world, indigenous local systems should not be ignored but strengthen using region specific approaches and not a "one-size-fits-all" model which has been characteristic of most failed agricultural development programmes. Barriers to change result for failure to adopt a participatory approach in bringing about change

A bottom-up approach should be adopted to ensure that these programmes meet the real and felt needs of the recipients and a feedback system should be put in place to monitor progress. Also, farmer-to-farmer learning strategies should be used whereby farmers who are early adopters are used to train others.

Government should not be tasked with the implementation of these programmes but should perform the function of ensuring an enabling environment for NGO and other private organisations to execute such projects.

87. Yrysbek Abdurasulov, Association of producers and processors of meat Kyrgyz Republic, Kyrgyz Republic

The contents of this e-conference on sustainable agriculture for food security and the role of livestock at the present stage of human development on the scale of the international community is essential. A mountainous countries, which include Kyrgyzstan is of paramount importance. Because, firstly, in terms of food security Kyrgyzstan belongs to the group of risky countries, secondly, livestock is the only source of income for residents of mountainous communities, livestock production is the main source of food for people highland communities. In addition, the increase in livestock population and intensive use of high-altitude pasture resources, degraded rangeland resources, disrupt the fragile mountain ecosystems, shrinking forests, glaciers are shrinking, and to reduce the country's water resources, which can have disastrous consequences for the entire Central Asian region. Taking into account climate change, backward economy, extensive agriculture, hidden large migration flows and drug trafficking, cross-border issues, and many other factors constraining the sustainable development of agriculture, food security and the role of livestock in it are overarching objectives for Kyrgyzstan, so and for other countries of Central Asia.

Y. Abdurasulov, Professor, President of the Association of producers and processors of meat Kyrgyz Republic - "Kyrgyz-Et"

88. Dele Raheem, Finland

There is a rising trend on the need to promote local food systems as more people will like to know more about what they consume and where they originate from. This is also in line with sustainability, the need to mitigate the effects of global warming and lower carbon footprints.

To ensure food security demands input from various sources and an awareness that will ensure that various stakeholders work in tandem. In order to address nutrient deficiency will require eating the right amount and a good balance of nutrients that will promote health. The demand for protein intake has been linked to economical prosperity - by promoting livestock at local and family levels will help to satisfy this demand. Another important source of protein are insects which are not popular in Western diets but can help to alleviate the burden on animal sourced protein.

A good mix of various solutions to address food security and nutrition are needed in the nearest future. This calls for innovative food product development right from the farm to the table. Pests and diseases have negative impacts on crop yield and can reduce livestock. Global warming will lead to more pests and diseases and they are a big challenge to food security and nutrition.

89. CARE International

Smallholder agriculture (including, for the purposes of this note, small-scale livestock production and livestock pastoralism) is a system of production that is closely associated with family and community structures and relations, and is inextricably linked to the local natural resource base and ecosystem. More than most other production systems, it is also heavily dependent on rainfall. Small scale

production is the mainstay of local rural economies in the developing world and smallholders are custodians of biodiverse seed and animal breeds and species which sustain natural resource integrity. CARE International welcomes the opportunity to submit comment on the scope of work for the HLPE report on sustainable agriculture as we consider this area to be of prime importance in the quest for just and sustainable food systems.

CARE appreciates the comprehensive nature of the scope of work as outlined in the consultation and makes the following observations and recommendations;

1 In section 2 ('assessment of implications') it is stated (2a) that gender considerations will be 'highlighted'. Given the significance of the roles and responsibilities undertaken by, and expectations placed upon, women and girls engaged in agriculture and livestock production, CARE believes that gender considerations require more specific and standalone attention in the scope and subsequent analysis. The need to address structural and persistent gender inequalities that underpin vulnerability to and poverty among smallholders is paramount. Addressing gender inequalities requires an approach that identifies and works toward gender-transformative outcomes. This must move beyond gender relations amongst individuals or households, and critically examine institutions and structures in agriculture and the ways in which they determine disadvantage. Agricultural extension and advisory (and climate information) systems are overwhelmingly gender-blind, for example, and inequitable access to and control of productive inputs, land, water and other natural resources is widespread. A transformative approach recognizes that focusing on women alone "is unlikely to result in a sustainable increase in their – or society's – adaptive capacity in the face of climate change." Crucially, a transformative approach takes into account social diversity and the multiple social roles and power relationships, which, together with gender, shape the vulnerability of smallholders. Addressing such gender inequality is a question of social justice and requires sustained efforts to "give priority to women's access to education, information, science and technology, and extension services to enable improving women's access, ownership and control of economic and natural resources." Beyond redressing social injustice, there is strong scientific evidence that empowering women in agriculture leads to improved nutritional outcomes – central to achieving the overall goal of food and nutrition security.

CARE thus recommends taking 'equality' (including gender equality) as a distinct area for investigation vis a vis 'implications' under the scope of the study and that it not be subsumed under other technical areas. This is particularly pertinent given the intention to assess implications vis a vis 'economic development'; ie; to ensure that the scope of work gives due attention to the inexorable rise in inequality particularly in the global south. Identifying the most vulnerable households, including landless labourers, and marginalised ethnic minorities, tribal groups and castes will be important in this work considering their dependence on agriculture for their livelihoods and the also the rights denials that they frequently face. Women from such populations are doubly disadvantaged.

2 2b ('access to land and natural resources'). Considering the importance of markets in stimulating both the supply of and demand for food, it is important to consider access to and regulation of these markets as critical variables. Where food and nutrition security is concerned, equitable access to markets for small-scale producers and both rural and urban consumers becomes critical. If then, as proposed, the scope of work is considering the impact of production trends on diets, it is likely that analysis will address the world's primary staple crops – wheat, rice and maize.

Animal and vegetable sources of protein will also likely be considered. But unless market factors are addressed in the analysis (such as the availability and affordability of quality seeds), recommendations may be sub-optimal and those value chains with potential to achieve positive nutritional outcomes in a warming world, such as cassava, cowpeas, lentils, or millet, for example, or the production of small livestock, may not be prioritised. Productivity emphasizes the necessity of increasing yields, but increasing smallholder incomes also requires sustainable access to equitable input and output markets on favourable terms. This area should be an essential element of any comprehensive investigation of this subject.

3 2e ('health of the environment and ecosystems, including climate change and biodiversity'), implies that the scope of work will consider the climate change implications of the projections of future food demand together with environmental and ecosystems implications. While there are clear links between these two areas, CARE would suggest treating these sets of implications as distinct in their own right. Attention to land management and soil and water management, for example, (and the concomitant need to urgently address land degradation) is a critical area for assessment, but the implications of food demand and production trends for greenhouse gas emissions and the possible related acceleration of climate change is deserving of its own section considering that 'sustainable' is in the title of the consultation.

4 Among the various other components of sustainable and just agriculture and food systems that CARE feels should be specifically addressed in the scope of work are:

- Water for agriculture—Considering that agriculture is the largest global user of scarce fresh water, and that water will be increasingly scarce in future due primarily to climate variability and change, it is imperative that water is afforded more attention in sustainable agriculture policies. CARE would stress the needs for global investments in irrigation efficiency, equity and environmental benefits, achieving more food for less water. Attention should be paid to both use of "green" water (e.g. rainfall and soil moisture; conservation agriculture focuses on this) and "blue" water from lakes, streams, and aquifers for irrigation;

- Local genetic resources—The protection and enhancement of indigenous seeds and animal breeds, which are often more resilient and better adapted to local conditions is important. This can be achieved in combination with the introduction of improved (e.g. drought tolerant) varieties. Genetic resources for food and agriculture play a crucial role in food security, nutrition and livelihoods and in the provision of environmental services. They are key components of sustainability, resilience and adaptability in production systems. They underpin the ability of crops, livestock, aquatic organisms and forest trees to withstand a range of adverse conditions. Thanks to their genetic diversity plants, animals and micro-organisms, in terrestrial and aquatic environments, adapt and survive when their environments change. Genetic diversity is also globally threatened by climate change, which poses new challenges to their management, but it also underlines their importance

- Farmers organisations— Strengthening organisations and associations that represent smallholder farmers and pastoral communities is an important aspect of building adaptive capacity and can enhance their ability to contribute to policy processes.

90. Madaline Young, Student of University of Leuven, Belgium

My suggestions focus on the importance of land use distribution and optimization studies that incorporate livestock production along with crop production, in order to account for the importance of animal-sourced foods in food security. See attachment for the abstract of my study on this topic in the Kirundo province of Burundi.

By concentrating calories and micronutrients, animal-sourced foods may provide an important source of nutrition in the developing world that plant-based diets alone may not provide. Therefore, incremental increases in livestock production in poor areas where basic food security remains unmet may be a crucial step in battling nutrient deficiencies and poverty.

Land use distribution studies at the regional level that relate crop and livestock production to the nutrition demands of the human population are an important tool for understanding and improving food security. Due to the relative importance of nutrient-dense calories from animal-sourced foods, land use optimization models for optimal food production must be further equipped to take into account the tradeoff between crop cultivation and raising livestock.

Densely populated areas under permanent upland cultivation or other intense farming systems produce livestock in low densities, mostly in synergy with crops or under no-grazing systems. Mapping the livestock potential of these systems in relation to crop cultivation type or rotational system could reveal the potential of animals to deliver high-density nutrients to humans. If a correlation is established between specific crops or land use types and the amount of livestock they can support, it becomes possible to identify those most productive crop or land use types for optimal nutrient production and to evaluate tradeoffs between land use types.

Abstract of M.S. Thesis topic

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/HLPE%20e-consultation%20-%20M.Young_.pdf

91. Prosper Monde, Ministère Agriclture , Benin

A) Contexte, tendances et défis

1. Le rapport du HLPE présentera d'abord une évaluation critique des projections existantes de la demande future d'aliments, y compris les aliments d'origine animale.

- Définir une période sur au moins 10 ans: d'ici 2025/2028

- En plus du terme « Demande future d'aliments », retenir aussi « **BESOINS FUTURS D'ALIMENTS**» « d'ici 2025/2028 »

Le terme « La demande future d'aliments » est un peu restrictif. Car, entre la demande d'aliments dans les pays à faibles savoir et connaissance en alimentation et nutrition et les besoins réels (estimés à partir des besoins énergétiques) la différence est très grande (en termes de quantité et qualité). Et au fur et à mesure que les conditions favorables sont réunies les demandes tendront vers les besoins réels. Mais en attendant, les gouvernements de ces pays se complaisent dans l'autosatisfaction car se disant autosuffisants (soldes vivriers non fiables), alors qu'en réalité il n'en est rien (car les populations allaient demander plus d'aliments si les conditions leur étaient plus favorables).

Il passera en revue les projections de la FAO et d'autres rapports de prévisions, notamment en ce qui concerne l'augmentation rapide de la demande de denrées alimentaires et d' aliments pour animaux, d'huiles comestibles et de produits non alimentaires, y compris les hypothèses qui sous-tendent ces projections, sur l'évolution des régimes alimentaires ainsi que sur les pertes et le gaspillage d'aliments, et le commerce.

Il faudra aussi élaborer des hypothèses relatives à **la disparition des sources traditionnelles d'aliments et de produits non alimentaires au niveau local**. En effet, ce phénomène qui ne constitue pas un problème pour les populations des villes (ne connaissant pas ou ne consommant pas ou très peu ces produits), est un véritable fléau silencieux et presque invisible qui affecte la sécurité alimentaire et nutritionnelle des ménages ruraux. Ce phénomène efface des mémoires humains et du paysage rural les essences végétales voire animales qui contribuent à son alimentation quotidienne.

Une évaluation prospective sans perspective sur la contribution de ces cultures et animaux ne sera pas exhaustive.

2. Le rapport analysera ensuite les incidences (défis et opportunités) de ces tendances sur le plan de :

1. la sécurité alimentaire et la nutrition (en particulier, les carences en nutriments, l'obésité et les maladies chroniques), l'insécurité en rapport avec l'état sanitaire/hygiénique des aliments), la réalisation du droit à l'alimentation, en faisant ressortir les considérations liées aux différences entre les sexes, ainsi qu'aux inégalités;

2. la réalisation du **devoir individuel de créer de la valeur alimentaire** en faisant ressortir la responsabilité du consommateur d'être aussi producteur de produits vivriers agricoles (un tout petit peu significatif chez soi, à son lieu de vie ou de travail, en tout là où cela est possible);

3. l'accès à la terre et aux ressources naturelles en insistant sur la disponibilité et l'accès à plus de **terres aménagées avec maîtrise de l'eau (eaux de surface et eaux souterraines)**pour l'irrigation en toute période de l'année (surtout en période sèche) ainsi que sur la préservation des essences végétales et animales en voie de disparition;

4. l'accroissement de la production et de la productivité agricoles ;

5. le développement économique ;

6. la santé de l'environnement et des écosystèmes, y compris le changement climatique et la biodiversité.

b) Parvenir à un développement agricole durable propice à la sécurité alimentaire et à la nutrition

3. À la lumière de ces projections, le rapport passera en revue les défis en termes de durabilité auxquels sont confrontés les systèmes alimentaires et agricoles basés sur les cultures et l'élevage, y compris le pastoralisme, dans différents types d'agroécosystèmes et pour différentes tailles d'exploitations intégrant les menaces pour la durabilité de ces systèmes, notamment les maladies animales, les ravageurs, la faible capacité d'entreposage individuel (en rapport avec l'accroissement de la production et de la productivité agricoles) et les maladies ainsi que les besoins énergétiques.

4. Le rapport déterminera les objectifs et les éléments d'approches durables de l'agriculture, y compris l'élevage, de façon à garantir la sécurité alimentaire et la nutrition pour tous sans compromettre les bases économiques, environnementales et sociales de la sécurité alimentaire et de la nutrition des générations suivantes. Il identifiera également des priorités critiques (« points de basculement » qu'il faut absolument aborder et des objectifs essentiels. Il intègrera les trois dimensions de la durabilité et considérera les outils de mesure pertinents.

5. Le rapport analysera les voies à suivre pour parvenir à des systèmes durables fondés sur les cultures et sur l'élevage, ainsi que les options permettant de gérer la transition vers des systèmes durables :

1. étant donné le rôle joué par l'élevage comme moteur du développement de l'agriculture et du secteur alimentaire, en tant que levier de changements économiques, sociaux et environnementaux majeurs dans les systèmes alimentaires du monde entier, une attention particulière sera accordée au rôle de l'élevage dans ces voies à suivre

2. l'étude considèrera les pratiques, y compris les pratiques agroécologiques, la diversification à tous les niveaux, ainsi que des perspectives plus larges allant des chaînes alimentaires aux systèmes alimentaires (y

compris les modèles de consommation), les approches locales vis-à-vis des approches globales, le commerce et l'investissement.

3. Le rapport définira les obstacles au changement, y compris en ce qui concerne les institutions, les organisations, les politiques et la gouvernance, et les moyens potentiels pour les surmonter.

4. Il abordera également l'environnement propice requis pour déclencher ou accompagner la transition : le rôle des politiques publiques et des outils pour promouvoir et faciliter la transition vers des systèmes durables :

Grâce aux :

i) Innovations en termes de :

- Produits
- Services
- Processus
- Organisations
- Politiques

ii) **Responsabilisation comme matrice pédagogique et politique**

Caricature N°1 du citadin: J'ai bien travaillé et j'ai beaucoup, et beaucoup d'argent. Où est la nourriture ?

Caricature N°2 du promoteur agricole : J'ai bien travaillé et j'ai assez à manger. Son argent aussi m'intéresse. Où est l'argent ?

Ciblée :

- Responsabilité des individus et de l'unité familiale.
- Responsabilité des communautés locales : Collectivités politiques locales ; organisations et associations locales ; institutions publiques locales ou déconcentrées.
- Responsabilité des gouvernements centraux.
- Responsabilité des bailleurs et partenaires techniques et financiers au niveau pays, région, continent.
- Responsabilité des pays du G7 ou G8.

Conclusions et recommandations en termes de politiques et d'actions (Produits, Services, Processus, Organisations).

92. Thitipong Srisombut, Department of Agricultural Extension, Ministry of Agriculture and Cooperations, Thailand

Views and comments on the proposed draft scope of the HLPE Report on Sustainable agricultural development for food security and nutrition, including the role of livestock from Development of Agricultural Extension

A) Context: drivers and challenges

* The report should address the monitoring of cooking practice for toxic-free and hygienic food consumption of people.

B) Achieving sustainable agricultural development for food security and nutrition – three issues that would be interesting to be considered are as follows;

* Contribute budget to small-scale farmers in order to motivate them to change and fit production into land and market potential

* Invest in production technologies to create sufficient food sources, for example, water system, agricultural machine etc. for sustainable career and crop yield improvement

* Financially support for developing and sharing knowledge of farming occupation throughout agricultural chain, such as study visit subsidy scheme

93. Strategic Objective 2 FAO, FAO, Italy

HLPE e-consultation – Sustainable agricultural development for food security and nutrition, including the role of livestock

Proposed text for the FAO Corporate Response from Strategic Objective 2 "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner"

FAO welcomes the selection of the theme "Sustainable agricultural development for food security and nutrition, including the role of livestock" by the CFS41. Sustainability is a critical issue, particularly vibrant as the United Nations are in the process of defining a post-2015 sustainable development agenda. To efficiently contribute to this global momentum, the topic deserves to be comprehensively addressed, and the HLPE report will certainly contribute to give an authoritative perspective to the subject.

Having examined the scoping paper and the contributions that were offered during the online consultation process, we would like to submit the following suggestions about the report's scope and the subsequent work.

According to its Member Countries' recommendations, FAO recently structured its work around five Strategic Objectives. Sustainability is at the core of this new strategic framework as it constitutes Strategic Objective 2 (SO2), that aims at making agriculture, forestry and fisheries more sustainable.

To support and accelerate the transition to sustainable food and agriculture systems, FAO has developed a Common Vision for Sustainable Food and Agriculture (SFA). SFA is now SO2's flagship and FAO's corporate approach to sustainability. This framework is being used by FAO in its contributions to SDGs discussions for sustainable agriculture and will serve as the background for the State of Food and Agriculture (SOFA) report, FAO's flagship annual publication, in 2016.

Integrating the Organization's extensive work on sustainability, SFA provides a conceptual framework based on five principles that are valid across agricultural sub-sectors (crops, livestock, forestry, fisheries and aquaculture), and that could contribute to structure the thinking about objectives and elements of sustainable approaches to agriculture:

1. Improving efficiency in the use of resources is crucial to sustainable agriculture

2. Sustainability requires direct action to conserve, protect and enhance natural resources
3. Agriculture that fails to protect and improve rural livelihoods, equity and social well-being is unsustainable
4. Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture
5. Sustainable food and agriculture requires responsible and effective governance mechanisms
6. FAO would therefore like to propose that the HLPE considers using the framework offered by this report as a tool in its analysis of the issues related to sustainability.

More details on the SFA approach are available at: http://www.fao.org/3/a-i3940e/index.html

Clayton Campanhola

Strategic Objective 2 Coordinator

Food and Agriculture Organization of the United Nations

94. UN Standing Committee on Nutrition, Switzerland

This contribution to the HLPE is submitted by the UNSCN, the United Nation Standing Committee on Nutrition. Thanks for the opportunity to comment on the scope of the study on Sustainable agricultural development for food security and nutrition, including the role of livestock.

In general, the new HLPE report is the opportunity to look at agriculture, nutrition, and food security in an integrated manner. The interlinkages between adequate nutrition, real food needs, food production and sustainable agriculture and climate change will be addressed. And this should be done in light of the outcomes of the Second International Conference on Nutrition (ICN2) as well as the SDG Framework.

This report should contribute to realize the ICN2 common vision for global action to end all forms of malnutrition and naturally be contributing to the implementation of some of the commitments to action made at the ICN2 and stated in the Rome Declaration. As such, contribute to ''enhance sustainable food systems by developing coherent public policies from production to consumption and across relevant sectors to provide year-round access to food that meets people's nutrition needs and promote safe and diversified healthy diets (Rome Declaration para 15.c). The report will be a valuable piece of work to help identify / outline policy and programme options for sustainable agriculture and food systems promoting healthy diets, and as such address relevant recommendations (like R8-11, and others) in the Framework for Action.

Specific comments

For the context section on drivers and challenges: **Demographics including urbanization** are important drivers for change in food security and agriculture. The world population living in cities that needs to be fed through sustainable agriculture and food systems is steadily increasing. This needs to be included when analysing the evolution of diets. Lifestyle changes and the nutrition transition are relevant issues to look at.

Address the issue of metrics: This means to look at quality aspect of diet beyond quantity. Another important step is to link nutrient-based food needs of people with the food production side. This raises the point that new metrics are needed, like production diversity indices as another metric of potential for diet diversity.

Food safety threats should be looked at in section B: As the world's population grows, the intensification and industrialization of agriculture and animal production to meet increasing demand for food creates both opportunities and challenges for food safety. Climate change is also predicted to impact food safety, where temperature changes modify food safety risks associated with food production, storage and distribution (WHO 2014).

The report should look not only address the production side, but also the consumer side. The Global Panel (2014) has argued that actions to address "not just agricultural productivity but improvements throughout the food and healthcare system represent critical opportunities for reducing malnutrition." Since food production, marketing and consumption patterns are changing so rapidly around the world new understanding is needed of the dynamic pathways that link producers and consumers. As a result, agendas aimed at securing healthy food systems must be reframed to take account of both intended and unintended consequences of public policy actions and private sector investments.

Sustainable agriculture production needs to be put into in a wider system based approach. Closely embedded with SDGs Framework is the vision of sustainable patterns of production and consumption. Policy actions that address not just agricultural productivity but improvements across entire food systems represent a new approach to tackling malnutrition in all its forms (Global Panel 2014). The term "nutrition-sensitive agriculture" has been coined to refer to policies and programmes interventions that can have positive nutritional impact by increasing the quantity and availability of agricultural commodities, as well as the quality of foods in terms of diversity, nutrient content and safety (Ruel and Alderman 2013).

As we move forward into the Post-2015 Development Agenda and the Sustainable Development Goals (SDGs), nutrition, food security and environmental sustainability should be considered intrinsically linked. Emerging thinking and practice at the nexus of nutrition, food systems, and natural resource management are described in a recent paper of the UNSCN. See: Global Nutrition Report. Technical Note 4, Towards Sustainable, Healthy and Profitable Food Systems: Nutrition and the Sustainable Management of Natural Resources. Authored by the United Nations System Standing Committee for Nutrition. Available at http://globalnutritionreport.org/the-report/technical-notes/

Multisectoral action approach needed to prevent and control noncommunicable diseases (NCDs). To gain sustainable agriculture development for food security and improved nutrition, a multisectoral action plan is needed. Only through such an approach synergize can be created by reinforcing the efforts from different sectors such as agriculture business, food industries, health education, and policies at different levels (local, national, regional, global). See: WHO Global Status Report on NCDs 2014, and the WHO Global Action Plan for the prevention and control of noncommunicable disease 2013-2020.

References:

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- WHO Global Action Plan for the prevention and control of noncommunicable disease 2013-2020, World Health Organization. http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf
- WHO Global Status Report on Non Communication Disease 2014, World Health Organization

We thank the HLPE and CFS secretariat for this opportunity to provide comments on the draft outline, and look forward to the report.

With kind regards

UNSCN Secretariat Team

95. Jacopo Ghione, Slow Food, Italy

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

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

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

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

Animals are sentient beings – they can suffer pain and distress or be happy and enjoy life. We therefore have a responsibility to ensure they are kept in humane farming systems, allowed to live a

life free from pain and mental distress and able to express their natural behaviors, and are slaughtered humanely.

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

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

Factory farms reduce animals to mere machines, subject to confinement and mutilations. These conditions make animals more prone to diseases and as a result, they are routinely injected with vaccines and antibiotics. This extensive use of antibiotics poses a risk to those who consume their meat and contributes to the emergence of antibiotic-resistant bacteria: a growing public health concern.
Making animal welfare a priority is an added value for both small- and large-scale farmers. Providing good living conditions for animals results in better health and less stress for the animals, and subsequently fewer diseases and a reduced use of drugs, lower production costs and improved product quality in terms of both taste and nutrition.

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

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

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

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

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

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

96. Greenpeace, Belgium

Greenpeace's contribution to consultation on the draft scope of the HLPE report on Sustainable agricultural development for food security and nutrition, including the role of livestock.

We welcome the focus of the proposed report on sustainable agricultural development for food security and nutrition, including the role of livestock. In particular the critical review of the projections made by FAO and other foresight reports, including assumptions regarding trends in increasing consumption of animal products and the feasibility of efficiency gains in livestock raising.

In line with our ecological farming definition (http://www.greenpeace.org/international/Global/international/publications/agriculture/2011/Defining-Ecological-Farming-2009.pdf) the objectives of any sustainable agricultural development approach for food security and nutrition, including the role of livestock should also include food sovereignty (farmers and communities maintaining control of the food system), rewarding rural livelihoods and resilient food and agricultural systems.

Ecological livestock, and more widely ecological farming, relies on the principle of ecological optimization, in other words it works with potentials and constraints of the system in terms of what effects it has on resources and its waste assimilation capacity.

Some of the main elements of such an ecologically optimized livestock system are outlined in our paper Ecological Livestock : Options for reducing livestock production and consumption to fit within ecological limits, with a focus on Europe (2013) (http://www.greenpeace.org/international/en/publications/Campaign-reports/Agriculture/Ecological-Livestock/) . We would urge that the proposed report include in its assessment of sustainable approaches ecologically optimized systems such as the 'leftover' / 'default' land user and diet approach. The 'default land user' approach is one where the role of livestock is to exploit the use of biomass not accessible to humans and to make efficient use of agriculture waste, surplus and marginal biomass.

In line with above, the "default livestock' diet is one "that provides meat, dairy and other animal products which arise as the integral co-product of an agricultural system dedicated to the provision of sustainable vegetable nourishment" (Fairlie 2010). Informing this approach would require assessment of scenarios including drastic cuts in the consumption of animal protein in high income countries and a moderate increase of consumption in low and middle income countries, following the shrink-and-share principle (adjusted to the realities of rapidly changing consumption patterns in eg BRIC countries). To make such scenarios useful we understand that regional and even country level scenarios for demand side measures should be made developed, building on existing global assessments and studies (http://www.nature.com/nclimate/journal/v4/n10/full/nclimate2353.html) .

See below for Greenpeace's suggestions on Proposed draft Scope of the HLPE Report by the HLPE Steering Committee.

A) Context: drivers and challenges

1. The HLPE report will begin with a critical assessment of existing projections of future food demand, including animal-sourced food. It will review projections by FAO and other foresight reports with particular reference to the rapid escalation of the demand for animal-source foods and feed, edible oils and non-food products, including the assumptions which are grounding these projections, on evolution of diets as well as on food losses and waste, and trade.

2. The report will then assess implications (challenges and opportunities) of these trends for:

- food security and nutrition (in particular nutrient deficiencies, obesity and chronic diseases), the realization of the right to food, highlighting gender considerations, as well as inequalities;
- access to land and natural resources and breaching of planetary boundaries;
- agricultural production and productivity increases;
- social and economic development, including the objectives of food sovereignty and rewarding farmer livelihoods;
- the health of the environment and ecosystems, including climate change, water and nutrient cycling systems, biodiversity and soil health;
- human and animal diseases;
- appropriate knowledge generation and dissemination;
- control of the food system (farmers and communities versus markets and corporations).

B) Achieving sustainable agricultural development for food security and nutrition

3. In the light of these projections, the report will review the sustainability challenges for crop and livestock-based agricultural and food systems, including pastoral systems, in diverse agro-ecosystems and for various farm sizes, taking account of threats to the sustainability of these systems, including animal diseases, pest and diseases, pollution and energy, land, water and scarce resource needs.

4. The report will identify objectives and elements of sustainable approaches to agriculture, including livestock, ensuring food security and nutrition for all without compromising the economic, environmental and social bases for the food security and nutrition of future generations. It will identify critical priorities ("tipping points" that need absolutely to be addressed) and objectives. All three dimensions of sustainability will be included and the report will consider relevant metrics that capture the multiple roles of systems integrating livestock.

5. The report will explore pathways towards sustainable crop and livestock-based systems, and options for managing the transition to sustainable systems:

- Given the role of livestock as an engine for the development of the agriculture and food sector, as a driver of major economic, social and environmental changes in food systems worldwide, particular attention will be paid to the role of livestock (and livestock feed production) in these pathways.
- The investigation will encompass practices, including agro-ecological practices, default land use approaches, diversification at all scales, as well as broader perspectives from food chains to food systems (including consumption patterns and diets, the extent of farmer and community control), local versus global approaches, trade and investment.
- The report will identify barriers to change, including in institutions, organizations, policies, market structures, subsidies, investment (by farmers, governments or philanthropic agents) and governance, and potential options to overcome them.
- It will cover the enabling environment necessary to trigger or accompany transition: the role of public policies and tools to promote and facilitate transition to sustainable systems.

6. Conclusions and recommendations for policies and actions.

22 January 2015

97. Send a Cow, United Kingdom

Send a Cow contribution to consultation on the draft scope of the HLPE report on Sustainable agricultural development for food security and nutrition, including the role of livestock.

We welcome this report with its focus on livestock, which, as the scoping document states, is at the centre of global food systems. As a charity working with smallholder farmers in sub-Saharan Africa, we seek to ensure that their voices are heard in this consultation.

Livestock is vital for the livelihoods of people all around the world, including the vulnerable and food insecure smallholder families we support. In addition to providing nutritious food, animals supply draught power, and act as savings mechanisms and a safety net to increase people's resilience to shocks.

Yet livestock does undeniably have negative impacts too. These include greenhouse gas emissions; deforestation and loss of biodiversity due to the expansion of grazing land and land for feed crops; and the increasing levels of obesity as populations switch to an animal-protein rich diet.

This report presents an excellent opportunity to identify the advantages and disadvantages of different systems in different contexts – including smallholder perspectives. We would like the report to explore:

- The use of human-edible crops as animal feed, particularly the impacts on food security, and the environmental impact of transporting these long distances.
- The concept of virtual nutrient and water trade. Water and many nutrients (effectively, soil) are depleted from feed producing regions and accumulated in livestock intensive areas (with serious consequences in both cases).
- Thorough assessments of the environmental impact of livestock in different production systems. Research carried out for Send a Cow suggested that in a mixed crop-livestock system, cows can in fact reduce greenhouse gas emissions as their composted manure enriches the soil, enabling more plants to grow. (See http://bit.ly/sacclimate)

- A better appreciation of the multiple uses of livestock. In many contexts, livestock's value cannot be restricted to the provision of meat, milk and eggs. They provide many services that have direct and indirect implications for food security. In some cases, these "non-market" values can be higher than the market ones.
- An integrated view of rural development. Accounting for differences in access to market (including both formal and informal markets), employment opportunities and conditions, as well as other related factors as gender, education and cultural traditions.
- The use of antibiotics in farm animals, its effect on the emergence of antibiotic resistance and the risk this presents to human health.
- A ranking of the sustainable (social, economic and environmental) consequences of different production systems within a single livestock species context, i.e. an analysis of the difference between pasture range grazed beef and herd-lot fed beef.
- The need to better integrate livestock and crop production. To close the nutrient cycle, minimize the dependence on agrochemicals, increase the resilience of food production and increase the diversity of our diets.
- Access to and free exchange of knowledge. To ensure the prevalence of farmer to farmer transfer and making sure that indigenous, traditional and localized knowledge is taken into account as a valuable source and not ignored by agricultural extension (bottom up, rather than top down approach); knowledge is not only derived from transferred practices and technologies.
- Identification of systems in which livestock is central to the way of life of people and not easily replaceable by any other activity (e.g. pastoralists, crofters).
- Worker conditions: on farms, in abattoirs, and elsewhere.

We are convinced that we cannot reconcile several aspects of current food systems, without changing our approach to livestock. At the same time, it's important to be aware of the possible adverse effects that proposed measures to improve food security could have on other aspects of sustainability.

98. Biovision / Millennium Institute, Switzerland

Biovision Foundation and the Millennium Institute are pleased to bring the following comments to your attention.

We strongly support the overall scope and direction for this HLPE report, particularly the subsequent elements:

The critical assessment of projections of relevance for sustainable agricultural development and livestock production with a view to assess the implications for food security, the realization of the right to food, rural livelihoods, access to natural resources, agricultural productivity, economic development, and the health of ecosystems (1, 2);

The explicit attention given to pastoral systems, as well as animal diseases, with diverse farm-sizes being part of the analysis (3);

The consideration of relevant metrics for sustainability in agriculture and food systems (4)

The explicit mentioning of agro-ecological practices as being part of the report (5b);

The analysis of barriers to change and the necessary enabling environments in realizing the shift to sustainable agricultural systems (5c, 5d).

To further enhance the relevance and improve the scope of the report, we make the following recommendations:

The implications of current projections should be analyzed critically and in an integrated manner to further the understanding of the relationship between the implications mentioned, such as the importance of agricultural biodiversity as the basis for resilient agricultural production in the long-term;

The analysis of agricultural production systems should include integrated crop-livestock farming systems and agro-pastoral systems. This will allow making a link between agricultural production and livestock, as stipulated by the HLPE theme, and provide important insights into sustainable agricultural development;

When looking at animal diseases and sustainable livestock production, the issue of animal welfare would also deserve attention;

The analysis of tools to promote and facilitate the transition to sustainable systems (5d) should specifically include the potential of multi-stakeholder, evidence-based assessment and planning tools and processes as a basis for successful pathways taken at country-level.

The report should draw from the International Assessment on Agricultural Knowledge, Science, and Technology for Development (IAASTD), as well as the results from the International Symposium on Agroecology for Food Security and Nutrition held in September 2014 at FAO.

Biovision Foundation supports sustainable agricultural development projects mainly in East Africa with an emphasis on empowering smallholder farmers. Biovision is a global advocate for sustainability, and was awarded, together with its President, the Right Livelihood Award - also known as the Alternative Nobel Prize, in 2013.

The Millennium Institute is a not-for-profit Organization committed to enhancing insights and decision-making that promotes sustainable development.

99. Rafael Perez Pena, Mexico

Biofuel Production: A Challenge for the Sustainable Agricultural Development for Food Security and Nutrition, Including the Role of Livestock.1

Currently many countries are considering biofuels production in their energy agendas. The driving factors for promoting this type of energy are basically to tackle climate change, promote agricultural development, and reduce oil dependency (Doku and Di Falco 2012; Duffey and Stange 2011; Sorda et al. 2010). Ethanol is the most produced biofuel worldwide. Since, ethanol production is principally based on edible crops a food vs fuel debate has been developed. This debate has not been found in the scope for the Sustainable Agricultural Development for Food Security and Nutrition, Including the Role of Livestock.

There are three major reasons why a food vs fuel should be considered as a challenge in the

proposed scope:

(1) Food supply diversification. The largest food producer countries are producing biofuel from edible crops (first-generation). In this sense, the US is the largest corn producer and exporter in the world.

In 2011/2012 it produced approximately 313 million metric tons, a 35.5% world's share (ERS USDA 2013). Moreover, it is the largest ethanol producer and it base the production on corn. By 2011 this country produced 14.3 billion gallons of corn based ethanol representing 62% of the global production (Earth Policy 2013). In this regard, a crucial question would be in what extend the developing countries who are dependent on US ethanol feedstock's imports are getting affected by ethanol production?

(2) Developing countries interaction on the biofuel production dynamic. Several developing countries are promoting biofuel production. The major drivers that these countries are following are to promote agricultural development and to reduce oil dependency. For instance, Brazil and Argentina play an important role on ethanol and biodiesel production, respectively. Furthermore, by 2011, 17 countries from Latin American and the Caribbean counted with a regulatory framework on biofuels (Duffey and Funge 2011).

(3) Differentiated impact on developing and developed countries in terms of welfare. Biofuels production might impact in a different way to economics agents in developed and developing countries. In this regard, it should be evaluated whether the gains on producer surplus compensate the losses on consumer surplus in developing and developed countries, in terms of biofuel feedstock.

There is recommended to include a food vs fuel debate as a challenge in the scope of Sustainable Agricultural Development for Food Security and Nutrition, Including the Role of Livestock.

1 Rafael Pérez Peña. Research Assistant, Dept. of Ag Econ & Ag Business. New Mexico State University. Email: rperez89@nmsu.edu

Source

Doku, Angela, and Salvatore Di Falco. "Biofuels in developing countries: Are comparative advantages enough?." Energy Policy 44 (2012): 101-117.

Duffey, Annie, and Daniela Funge, Estudio regional sobre la economía de los biocombustibles 2010: temas clave para los países de América Latina y el Caribe, Dialogo de Políticas sobre desarrollo institucional e innovacion en biocombustibles en América Latina y el Caribe, (March 2011): 1-100.

Earth Policy Institute, Climate Energy and Transportation, (2013): http://www.earthpolicy.org/data_center/C23, consulted on January 12, 2015.

Sorda, Giovanni, Martin Banse, and Claudia Kemfert. "An overview of biofuel policies across the world." Energy policy 38, no. 11 (2010): 6977-6988.

USDA ERS. Feed Grains Database, United States Department of Agriculture Economic

Research Service, Washington D.C., (2013): http://www.ers.usda.gov

100. Flabert Nkwele, CECOSDA - Center for Communication and Sustainable Development for All, Cameroon

In Yaounde, Poultry manure is used to fertilize garden crops and thereby increase food security. In this case, one can say that combining livestock and farming plays a great role in sustainable agriculture. For the purpose of this E-consultation, CECOSDA followed the activities of Mariette who combines poultry and farming as a sustainable agricultural technics.

In Damas, a locality of Cameroon's capital city Yaoundé, Mariette and her family are into a small mix agricultural system where they rear fowls and also grow crops for local consumption and sales in the local markets of Damas and Biyem-Assi. Mariette has 300 chickens and she produces about 10 bags of compost per week. She sells a bag for 500 F CFA, she explains that she can comfortably fertilize about 10m² of her farm land with one bag of the compost. About 50km away is Mr Njoya Jarvis who grows fruits crops like tomatoes, pepper, and vegetables like "Amaranthus" (popularly known in the Yaounde local markets as Follong). Jarvis buys compost from another client who rails chickens like Mariette and he has seen that his productivity has greatly increased from 2012 when he started using the compost from fowl drops. In fact, he is presently trying to set up his own local poultry so that he will not continue to buy compost from another farmer.

The local and individual initiatives like that of Mariette will go a long way to reduce the level of food insecurity in Cameroon. It has been observed that many people would like to get involved in this environmental friendly and sustainable farming method, but they are lacking in information which still remains a very vital aspect of sustainable development in Cameroon.

101. Oxfam

Oxfam input on the proposed draft scope of the HLPE Report on sustainable agriculture development

A) Context: drivers and challenges The report should start by providing a critical assessment of the current situation. It should provide a clear picture of the current levels of sustainability of different agricultural development paths. In fact, it is critical that the report help CFS Members and Participants to have a policy discussion based on evidence on what is the current situation. It is critical that the report look at the performance of the agricultural sector in term of sustainability by comparing the situation in different regions, of different scales of farming (small vs large scale), production models (high external inputs vs. low external inputs, monoculture vs. diversified production, etc.) and organization of the food system (concentration, ownership, etc.). Across all the report, the different roles, responsibilities and impacts of different types of agriculture development models should be clearly underlined. Notably, a clear difference should be made between small scale food producers and large scale agriculture and between agro-ecological and industrial agriculture.

In addition, we agree that a critical assessment of existing projections of future food demand is important but it is not enough to develop a strong forward looking analysis. In fact, it is key that the report will also present a critical assessment of projections in term of climate impacts, natural resources access (e.g. looking at soils degradation, water depletion, etc.) and socio-economic evolution (e.g. inequality, gender equality, rural-urban inequality, etc.).

The assessment of challenges need also to identify those relevant areas in agricultural production are already exceeding the planetary boundaries or at critical stages, including biogeochemical flows (nitrogen and phosphorus cycles), biosphere integrity, climate change and land system changes (see the updated study http://www.stockholmresilience.org/21/research/research-news/1-15-2015-planetary-boundaries-2.0---new-and-improved.html) and combining these planetary boundaries with the social foundation of human rights and equity (see the Oxfam approach of the doughnut for a safe and just planet http://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf).

The assessment should integrate an analysis on how the different agricultural development paths are being determined (eg. by market, policies, power, stakeholders) and identify potential governance issues and challenges to ensure their ecological, social and economic sustainability.

In relation with the point 2, It is important that:

- Gender inequality is included across all points, not only in point a).

- Inequality along rural vs. urban lines is included not only in point a) but also d) and e)

B) Achieving sustainable agricultural development for food security and nutrition

The point 3 should be based not only on the projections but also on the current situation in order to review the sustainability challenges.

It is critical that the point 5 focus on agroecology. It is important that the focus will not be only on agro-ecology as a set of practices but more broadly as an approach. It would be extremely useful if this part underline as well concrete models and approaches that proved to be very successful in term of sustainability. Literature on agro-ecological experiences would be essential to identify those success stories. An example that could be underlined is the System of Rice Intensification (SRI). Oxfam produced two reports in 2014 that hopefully you will find helpful:

- Oxfam (Jan 2014), Scaling-up agro-ecological approaches: What, why and how?, Discussion paper (http://www.fao.org/fileadmin/templates/agphome/scpi/Agroecology/Agroecology_Scaling-up_agroecology_what_why_and_how_-OxfamSol-FINAL.pdf).
- Oxfam (Apr 2014), Building a New Agricultural Future. Supporting agro-ecology for people and the planet, Issue Brief. (http://www.oxfamamerica.org/static/media/files/ib-building-new-agricultural-future-agroecology-280414-en.pdf)

Point 5: on the basis of the assessment made in part A) the report should identify distinct pathways in agricultural production where decisions need to be taken to a) redress unsustainable practices and policies, b) adapt those to remain sustainable in the future c) identify potentialities that can further contribute to make agricultural production sustainable and d) identify governance pathways of transition to ensure sustainable agricultural production within a safe and just planet. “Tensions" or "dilemmas" for farmers in adopting more sustainable practices (e.g. the need for intensive labour and women's time-poverty) should be included in the analysis.

102. World Food Programme

WFP Nutrition comments on the Proposed draft Scope of the HLPE Report “Sustainable Agricultural Development for Food Security and Nutrition, Including the Role of Livestock.”

General Comments:

- It would be helpful to include an introduction section prior to the context on the scope of the HLPE report, explaining what is within and outside of the scope of the report.
- In addition, it would be useful to document and provide an overview of other processes / reports / platforms, and overlap (if any) with the ongoing work of, for example, the Comprehensive Africa Agriculture Development Programme (CAADP) and the International Livestock Research Institute (ILRI), and explain the value added by this report.

Comments by section and paragraph:

A) Context: drivers and challenges

1. Line 1: It would be good for the assessment to not only use 'existing projections,' but also to model according to food-based recommendations for different age and sex groups. This will provide a reality check for food-based recommendations vs. food production and processing capacities.

   Line 3-4: Do 'foods' here refer to both processed and unprocessed foods?

   Line 4: Since the document pertains to agriculture development for food security and nutrition, it would be helpful to explain the rationale for including "non-food products"? What do these refer to and what insights are expected to be gleaned from such an assessment?

2. Point a: In addition to the 'right to food', suggestion to point out that a diverse diet with a variety of foods is required to meet nutrient requirements. It would be good to highlight not only gender, but subgroups such as pregnant and lactating women, adolescents and elderly. Suggest to also highlight implications for emergency contexts. Will the report look at only the supply / production side? What about issues of access including affordability? (The last question also applies to section 6 b.)

   Point c: Suggestion to add nutrition sensitive agriculture in addition to productivity increases – opportunities for both quality and quantity should be explored.

   Point d: How about the cost of different categories of food (staples, vegetables, meat, fish etc.), considering availability and transport cost?

B) Achieving sustainable agricultural development for food security and nutrition

3. To what extent will this be a country- / region-specific approach vs. a global approach? Suggest starting with the former to result in a global projection. This applies to all points below as well.
4. 'Tipping points' – suggestion to also include "negative" tipping points, i.e. those which if surpassed, would result in an unsustainable agricultural system, malnutrition, food insecurity, etc.
5. Point a: For role of livestock in nutrition, needs should be considered. Animal-source foods are particularly important for young children and to some extent for adolescents and women of reproductive age. Consider earlier publications for feasible per capita consumption of animal-source foods, which factors in current and projected global needs and demand. The current global average meat consumption is 100 g per person per day, with about a ten-fold variation between high-consuming and low-consuming populations. 90 g per day is proposed as a working global target for 2030, shared more evenly, with not more than 50 g per day coming from red meat from ruminants.1

   Point b: The discussion of consumption patterns might be more robust if the new modeling of food-based recommendations by age and sex group (mentioned in the comment from Section A, line 1, above) is undertaken. This would allow us to more accurately say who is consuming too much or too little of specific foods. On another note, though, would food

1 Please see McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Food, livestock production, energy, climate change, and health. *The Lancet*, *370*(9594), 1253–1263. doi:10.1016/S0140-6736(07)61256-2

system/consumption patterns-based pathways be considered broader than the theme of sustainable agricultural development?

Point c: Suggest highlighting how barriers and potential options would differ for emergency contexts vs. development context vs. developed countries.

Point d: Will the discussion on the enabling environment include existing global mechanisms and processes? The role of private sector and food processing should be mentioned as well.

103. Animal Production and Health Division, FAO, Italy

AGA welcome the opportunity to provide comments to the HLPE report's scope on "Sustainable agricultural development for food security and nutrition, including the role of livestock". The livestock sector has been often poorly understood and absent from the global policy debate, and this report could provide a good opportunity to highlight the discussion about the role of livestock as a critical component of sustainable agricultural development. However previous reports have also addressed similar concerns, therefore it will be important that this report carefully identify the key aspects that will add value to the discussion.

I. General Comments:

a. **Build on forthcoming revisions of the sustainability concept.** The report should address the sustainability concept taking into account, the Post-2015 Sustainable Development Agenda, and the coming SOFA 2016 on "Enhancing the sustainability of food and agriculture".

b. Not to over-emphasize the relationship between sustainable development and food markets projections. Although the expected increase in the demand for food will be a main driver, the factors that are threatening the sustainability of the system go beyond how food markets will behave in the future, including governance issues, inequality, the presence of market and policy distortions, the gender perspective of poverty, and unemployment among others. Contextualizing the sustainable development discussion solely on future trends might jeopardize the identification of key factors threatening the economic, social, and environmental sustainability of the agricultural sector for food security and nutrition.

c. Some important general features related to livestock to be consider. The economic importance of livestock (contributing a growing share of agricultural GDP, in developed countries more than half) and economic opportunities; The social dimension (incidence of poverty and importance for livelihoods) but also diets; The resource and climate dimension (resource requirements, climate gas emissions and exposure to climate change, food-feed competition); The health dimension (contribution to healthy diets, but also food safety and zoonoses), The narrative developed by the Global Agenda for Sustainable Livestock (under livestockdialogue.org) could serve as an important reference.

d. **Provide an integrated sectorial perspective.** Although the report will particularly focuses on livestock it should link the role of fisheries/aquaculture and forestry.

II. Specific Comments

A. Context: drivers and challenges

A1a. Address food projections and drivers from the demand and supply side. Section A1 should not only deal with demand drivers but also include supply drivers such as growing resource scarcity (land, water, energy, nutrients) and climate change, and drivers outside the agricultural sector (e.g. competition for resources), paying particular attention to the demand and supply of animal feeds.

A1b. Special attention should be given to the analysis of livestock projections. Previous projections have been criticized for not sufficiently address the complexity of the livestock sector. This report should look not only livestock commodities, but pay particular attention to different types of productions systems, discussing their response capacity of the sub-sector by production system, the technological boundaries of intensification, the role of grasslands and the potential changes in land use, what regions and type of producers are likely to benefit or lose.

A2. Specific section that looks at livestock's markets concentration trends. The report should include another item under A2 to raise the attention of the increasing concentration in livestock markets, assessing the potential consequences and implications for smallholders and pastoralists and their effects on equality.

A2b. Trade-offs and externalities. The trade off and internalization of environmental and other externalities and their impacts on prices and markets should be addressed for different production systems.

B. Achieving sustainable agricultural development for food security and nutrition.

B2. Describe sustainability as continuous improvement. Contrary as what the terms "achieving sustainable development" and "transition to sustainable systems" would suggest, this session should describe sustainability as a continuous improvement and not as an end point.

B2a. **Although the title mentions nutrition, the nutrition aspects are not evident.** In the preparation for the CGRFA special event on genetic diversity and food security it appeared that modern crop varieties have less protein and nutrients than traditional ones; same seems to be the case in aquaculture. The report could look at nutrition composition of animal sources of food from different production systems and breeds.

B.5 Employ the principles developed within the SFA framework. This section could usefully employ the "five principles" developed within the SFA, namely improve efficiency, protect resources, improve livelihoods and social well-being, enhance resilience, and improve governance.

B.5e Specific section that looks at feeds and feeding practices. Generally the production of feed for livestock production should be addressed in more depth than the current outline may suggest.

B.6 Conclusions and recommendations for policies and actions. This section could make use of the "four action areas" (evidence, dialogue, tools, practice change) developed by SFA

III. List of Experts

Some possible experts are: Mario Herero, CSIRO Thornton, ILRI/CCAFS, Samuel Jutzi, SWI, Brian Perry, Elizabeth Parker, Alberto Valdes, Carlos Pomareda, Carlos Seré, Neil Fraser, Frik Schneider .

104. Dirk Verdonk, World Animal Protection, Netherlands

World Animal Protection is very grateful for the opportunity to contribute to the development of the scope of the HLPE study on *Sustainable agricultural development for food security and nutrition, including the role of livestock*. From our perspective, the draft scope provides an excellent base for the study and it is our hope that undertaking the HLPE study, in and of itself, will allow for a growing recognition that the global adherence to animal welfare principles in livestock production will have significant positive impacts for sustainable development, including food security and nutrition as well as food quality and safety. We hope that the following comments will be helpful to the process.

Part A: Context: drivers and challenges

Whereas a critical assessment of drivers and challenges will be essential as a base for identifying pathways to sustainable agriculture and livestock production, the validity of the assessment and therefore the appropriateness of pathways identified will largely depend on the assumptions that ground the current debate. Therefore clarifying what the assumptions have been and possibly assessing the validity of assumptions made should be part of the drivers and challenges section.

In this regard, World Animal Protection would like to raise two issues for consideration by the Project Team:

§ Should there be a linear relationship between the rapid escalation of demand for animal-source food and global livestock production levels? In other words, does supply have to follow demand or does the sustainability of the overall agricultural sector, taking into account the relatively high water-, land- and climate footprint of animal-source foods, require that an appropriate balance between animal and crop-sourced foods be considered in the study.

§ Studies[i] show that 36% of the world's human-edible crop calories are fed to animals but only 17%-30% of these calories are returned for human consumption as meat or milk.[ii] The effect of this is that 25%-30% (70%-83% of 36%) of the world's crop calories are lost through livestock production. However, the FAO currently defines food loss and waste as a reduction in food mass (rather than nutritional value) and specifically excludes from its definition human-edible food that is used as animal feed. [iii] Changing the definition – nutritional value (calories) rather than mass and including all food even if unintended for human consumption – will therefore lead to substantially different conclusions, without depreciating the value of animal sourced foods in delivery of protein and micronutrients, especially in developing countries, and, as such, the value of smallholder and pastoralist livestock production in ensuring nutritional sufficiency.

In terms of the challenges and opportunities areas identified, we believe that the following issues are missing from the current listing:

§ Animal welfare (including animal health) is increasingly recognized to have a direct impact on economic growth and viability (consumer choice, productivity increase, etc.) social concerns in terms of public health, food safety and quality (as recognized recently in the CFS Principles for Responsible Agricultural Investments), and environmental sustainability, including emissions, water and land-use, etc. Animal health and welfare should be added to what is currently item e. in paragraph 2. Alternatively, it could be added as a separate issue in this list. Since livestock production is a focus area of the report, this seems fitting as animal health and welfare is core to livestock production. This is recognized in definitions of sustainable livestock, such as those outlined by the FAO-led Global Agenda for Sustainable Livestock, the primary international high level multistakeholder platform addressing this issue.

Addressing the topic of animal welfare is also in line with the HLPE's Note on Critical and Emerging Issues for Food Security and Nutrition (August 2014) which draws attention to the animal welfare concerns connected to industrial animal production and the need for policies that could significantly reduce the harm caused by some livestock systems while increasing the positive outcomes for nutrition and for livelihoods that the livestock sector can provide. Note also that the topic 'Animal welfare and food security' was part of the option 'Livestock' in the list of proposals for the HLPE report in 2016 as presented during CFS 41.

§ In addition to issues related to nutrition, wider concerns about the link between livestock production and public health (zoonotic disease, rising AMR due to antibiotic use in livestock production, in short the 'one health' approach) should be reflected. Public health concerns could be reflected under what is currently item a. in paragraph 2.

Part B: Achieving sustainable agricultural development for food security and nutrition

In light of the potential importance of the envisioned HLPE report for incentivizing a new global approach to sustainable agriculture, World Animal Protection, encourages the Project Team to take a collective systems approach in addition to the more disaggregated individual systems approach as is suggested by the current language in paragraph 3.

World Animal Protection strongly encourages the Project Team to explore some of the following options as possible pathways towards sustainable agriculture:

· Supporting animal welfare (including animal health) as tool to advance FSN and sustainable development, including by implementation of good animal health and welfare standards in livestock production to improve productivity and resilience;

· Considering limits on the usage of human-edible food for purposes other than food, including animal feed.

· Focus on increasing sustainable consumption to ensure nutritional sufficiency for all, and to drive forward sustainable livestock production.

See attahed further comments in a background paper plus, in track-changes, World Animal Protection's suggested additions to the scope.

Thank you very much for your consideration, much appreciated.

Best regards,

Dirk Verdonk

[i] Cassidy E.M *et al*, 2013. *Redefining agricultural yields: from tonnes to people nourished per hectare*. University of Minnesota. Environ. Res. Lett. 8 (2013) 034015; Erb K.H *et al* (2012), *The Impact of Industrial Grain Fed Livestock Production on Food Security: an extended literature review, Institute of Social Ecology*, Alpen Adria Universitat Klagenfurt, Vienna, Austria.

[ii] Lundqvist, J., de Fraiture, C. Molden, D., 2008. *Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain*. SIWI Policy Brief. SIWI.http://www.siwi.org/documents/Resources/Policy_Briefs/PB_From_Filed_to_Fork_2008.pdf; Nellemann, C., MacDevette, M., Manders, et al. (2009) *The environmental food crisis – The environment's role in averting future food crises*. A UNEP rapid response assessment. United Nations Environment Programme, GRID-Arendal, www.unep.org/pdf/foodcrisis_lores.pdf

[iii] FAO and Swedish Institute for Food and Biotechnology (SIK), 2011, *Global Food Losses and Food Waste*, Study conducted for the International Congress SAVE FOOD!,http://www.fao.org/docrep/014/mb060e/mb060e.pdf

105. Carlos Gonzalez Fischer, Compassion in World Farming, United Kingdom

Dear HLPE,

Thanks for the opportunity to provide inputs on the draft scope of the report.

Llivestock is at the centre of current global food systems: 75% of all agricultural land is dedicated to grazing or growing feed crops, and 36% of global crop production (by calories) and 29% of all marine capture fisheries landings (by weight) are destined to feed animals.

How many animals we raise and how we do it has a direct impact on the amount and quality of food we produce. It can also have indirect effects on food security, as it affects many proceses that are closely linked to it (climate change, water use, pollution, land use, etc.)

Please find attached the contribution from Compassion in World Farming to the consultation.

Best regards,

Carlos Gonzalez Fischer

Compassion in World Farming's contribution to consultation on the draft scope of the HLPE report on Sustainable agricultural development for food security and nutrition, including the role of livestock.

We welcome the timely focus of this report on Sustainable agricultural development for food security and nutrition, including the role of livestock. As the scoping document states, livestock is at the centre of current global food systems: 75% of all agricultural land is dedicated to grazing or growing feed crops2, and 36% of global crop production (by calories)3 and 29% of all marine capture fisheries landings (by weight) 4 are destined to feed animals. How many animals we raise and how we do it has a direct impact on the amount and quality of food we produce.

We also welcome the inclusion of a critical assessment of food demand projections. Many projections assume a "business as usual" evolution of consumption patterns. However, there is enough evidence to show that supply-side measures won't be enough to ensure the sustainability of our food systems and that demand-side measures will also have to be part of the solution. If consumption patterns change, the requirements to fulfil them, will also change. We should not see those projections as an inevitable future we must cater to, but as guides to help us shape the future and achieve truly sustainable and sufficient food production.

However, livestock goes beyond just food. On one hand, it's a major driver of some of the most threatening impacts we currently face:

- Livestock is responsible for 14.5% of anthropogenic GHG emissions5;

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2 Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., ... & Zaks, D. P. (2011). Solutions for a cultivated planet. Nature, 478(7369), 337-342.

3 Cassidy, E. S., West, P. C., Gerber, J. S., & Foley, J. A. (2013). Redefining agricultural yields: from tonnes to people nourished per hectare. Environmental Research Letters, 8(3), 034015.

4 Metian, A. G. T. M. (2009). Fishing for feed or fishing for food: increasing global competition for small pelagic forage fish. AMBIO: A Journal of the Human Environment, 38(6), 294-302.

5 Gerber, P. J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., ... & Tempio, G. (2013). Tackling climate change through livestock: a global assessment of emissions and mitigation opportunities. Food and Agriculture Organization of the United Nations (FAO).

- the expansion of pastures and cropland expansion (driven by the increasing demand for feed crops) and the associated deforestation and biodiversity loss; and
- the high levels of animal protein intake in some societies plays an undeniable role in the rise of obesity and related non communicable diseases. Not just because of the direct intake of meat, milk and eggs, but because of the associated consumption patterns (fried chicken, burgers, processed foods, etc.).

On the other hand, livestock sustains the livelihoods of people all around the world, including the most vulnerable and food insecure among us. Livestock is key in providing valuable nutrients but also many other services, ranging from draught power to work the land and transport goods, to roles in maintaining community structure, acting as indicators of social status and as savings mechanisms that increase the resilience of people's livelihoods to extreme or unpredictable events.

Discussions about livestock tend to be polarized. We believe this to be caused by a lack of distinction between different production systems and a lack of a "food systems" approach with an integrated view of crops and livestock production, as well as of food consumption patterns. This report presents an excellent opportunity to distinguish between different systems and identify their advantages and disadvantages in different contexts. We would like the report to explore the differences between different systems from different perspectives, including but not limited to:

- The use of human-edible crops as animal feed (and other aspects of the food vs feed debate), including impacts on food security and resource use efficiency.
- The concept of virtual nutrient and water trade. Water and many nutrients (effectively, soil) are depleted from feed producing regions and accumulated in livestock intensive areas (with serious consequences in both cases).
- A better appreciation of the multiple uses of livestock. In many contexts, livestock's value cannot be restricted to the provision of meat, milk and eggs. They provide many services that have direct and indirect implications for food security. In some cases, these "non-market" values can be higher than the market ones. As these services are more pronounced in the livelihood strategies of poor and women livestock keepers, much work on pro-poor livestock interventions has found that enhancing these services provides a more effective tool for food security than improvements in productivity or markets.
- An integrated view of rural development. Accounting for differences in access to market (including both formal and informal markets), employment opportunities and conditions, as well as other related factors as gender, education and cultural traditions.
- The use of antibiotics in farm animals, its effect on the emergence of antibiotic resistance and the risk this presents to human health.
- The need to better integrate livestock and crop production. To close the nutrient cycle, minimize the dependence on agrochemicals, increase the resilience of food production and increase the diversity of our diets.
- Access to and free exchange of knowledge. To ensure the prevalence of farmer to farmer transfer and making sure that indigenous, traditional and localized knowledge is taken into account as a valuable source and not ignored by agricultural extension (bottom up, rather than top down approach); knowledge is not only derived from transferred practices and technologies.
- Identification of systems in which livestock is central to the way of life of people and not easily replaceable by any other activity (e.g. pastoralists, crofters)

- An appreciation of the institutional constraints to livestock ownership. Although development interventions have tended to rely on technical inputs, institutional constraints such as vulnerability to theft, access to grazing or primary animal health services have frequently proven to be more critical, particularity to the poor and to women

We are convinced that we cannot reconcile several aspects of current food systems, without changing our approach to livestock. At the same time, it's important to be aware of the possible adverse effects that proposed measures to improve food security could have on other aspects of sustainability.

106. Jean-Paul Pradere, Spain

Chers collègues HLPE,

La volonté d'inclure le développement des productions végétales et des productions animales dans un même rapport et dans un objectif de développement durable, mérite d'être saluée.

La complémentarité entre productions végétales et animales est trop souvent négligée alors qu'elle est essentielle pour l'économie de nombreux ménages de petits agriculteurs (ce que plusieurs intervenants ont bien souligné). Elle est également très importante dans les systèmes agricoles intensifs (pour des raisons de maintien de la fertilité des sols, de maintien de la biodiversité, etc.) Encore une fois, une approche globale dans un objectif de durabilité me semble excellente.

La structure proposée me semble très satisfaisante. Je souhaiterais toutefois attirer l'attention sur deux points :

1) Le champ de l'étude est très (trop ?) vaste, parce qu'il inclut à la fois les concepts de production, de "sécurité alimentaire" et de "nutrition". A mon avis il s'agit de domaines complémentaires, mais différents. Il est évident qu'une personne peut disposer de quantités suffisantes d'aliments et être mal "nutrie" et manquer des nutriments essentiels. Cette personne peut aussi être obèse, etc.

Par ailleurs, en traitant à la fois de "sécurité alimentaire" et de "nutrition", on s'adresse à des catégories d'acteurs différents, tant au niveau des décisions qu'au niveau des intervenants et des productions. Aux questions d'environnement et d'agriculture, s'ajoutent pour la nutrition, des questions de santé publique.

Je ne veux pas minimiser l'importance de l'aspect nutrition, au contraire. Toutefois, la préparation de ce rapport sera difficile et la prise en compte du concept de nutrition va encore complexifier la tâche, rendre les recommandations plus nombreuses, portant sur des domaines différents, etc. Ce qui risque d'affaiblir l'efficacité de l'ensemble.

A mon avis, une concentration sur les thèmes de développement agricole durable et de sécurité alimentaire me semblerait opportune. La nutrition - sujet très important - pourrait être l'objet d'un rapport ultérieur. Ceci dit je suppose que des choix ont déjà été faits et qu'il est probablement difficile de revenir sur le champ de l'étude?

2) **Le besoin d'analyse des politiques et le besoin de comparaison des expériences acquises**. La structure de la deuxième partie (partie B) me paraît très complète. Il me semble qu'elle répond bien aux besoins d'amélioration des politiques et aux besoins d'information des acteurs (notamment des décideurs).

Concernant la partie A. Dans le paragraphe A.1) je présume que les projections envisagées seront désagrégées, c'est à dire qu'elles permettront de juger des évolutions séparemment en fonction d'un découpage, par région, par niveau économique, ou autre, et que "l'évaluation critique des

projections existantes" inclura de solides analyses des politiques publiques mises en oeuvre (appuis de la recherche, financement, cadre règlementaire, etc.). Cela afin de pouvoir relier les observations quantitatives à des orientations politiques ou à des particularités du contexte socio-économique ou climatique et donc de pouvoir tirer de solides conclusions pour alimenter la rédaction de la partie B et justifier des conclusions et les recommandations de "bonnes pratiques".

Je souhaite une excellent réussite à l'équipe chargée de préparer ce rapport important.

107. Groupe Interministériel sur la Sécurité Alimentaire (GISA), France

Nous nous félicitons de la décision prise par le Comité de la Sécurité Alimentaire mondiale (CSA) à sa 41ème session plénière de demander au Groupe d'experts de haut-niveau sur la sécurité alimentaire et la nutrition (HLPE – High Level Panel of Experts) la conduite d'une étude sur « le développement agricole durable au service de la sécurité alimentaire et de la nutrition, y compris le rôle de l'élevage » et remercions le HLPE pour cette consultation.

La version des termes de référence présentée à cette consultation électronique privilégie l'étude des équilibres entre offre et demande d'aliments et de produits non alimentaires issus de l'agriculture à moyen et à long terme comme point de départ à l'analyse des défis posés à l'agriculture et à l'élevage. Cette approche de la sécurité alimentaire et nutritionnelle centrée sur les équilibres entre disponibilité et demande ne nous semble pas correctement traduire l'ensemble des dimensions qui sont le fondement de la sécurité alimentaire et la nutrition, et notamment les enjeux d'accès, de qualité de l'alimentation (nutritionnelle et sanitaire) et de santé publique[1]. Afin de tenir compte de ces enjeux, il conviendrait de centrer davantage ce rapport sur les différents piliers de la sécurité alimentaire et nutritionnelle (accès, disponibilité, qualité de l'alimentation et régularité). Ceci permettrait de s'interroger sur les conditions pour que le développement agricole durable contribue à la sécurité alimentaire et à la nutrition, y compris l'élevage.

Ainsi, l'objectif de ce rapport devrait être de faire une synthèse des débats liés à la définition du développement agricole durable et d'identifier les difficultés, les pistes de recherche et les conditions pour que le développement agricole durable (intégrant dûment l'élevage et la santé animale) soit davantage propice à la sécurité alimentaire et la nutrition.

Les différents modèles de développement agricole existants n'ont en effet potentiellement pas les mêmes effets sur la sécurité alimentaire et la nutrition en ce qui concerne:

- l'évolution des inégalités à la fois sociales, économiques et territoriales en milieu agricole, pouvant conduire à des marginalisations de populations en termes d'accès à la terre ou à toute autre ressource naturelle, et aux moyens de production (notamment aux intrants);
- le maintien et la création d'emploi agricole et péri-agricole, dans des contextes de transition démographique où des millions de jeunes arrivent chaque année sur le marché du travail;
- la régularité de la production et des revenus des agriculteurs, éleveurs et agropasteurs ainsi que des acteurs liés à l'agriculture pouvant avoir des effets sur la régularité de l'accès à une alimentation saine et équilibrée;
- la diversification des productions agricoles, à l'inverse, la spécialisation des productions peuvent avoir des conséquences importantes sur la diversité alimentaire et donc la nutrition;

- le travail des femmes et les rapports de genre avec des conséquences notamment sur le soin aux enfants pouvant avoir des impacts sur leur situation nutritionnelle;
- la santé et par conséquent la nutrition, par exemple lorsque une irrigation mal maîtrisée se traduit par une recrudescence de parasitoses ou qu'une mauvaise conduite de l'élevage induit une augmentation des infections humaines d'origine zoonotique ;
  la durabilité des systèmes alimentaires et des écosystèmes, ce qui a des conséquences sur la stabilité de l'accès à l'alimentation, si la base de ressources et de services écosystémiques nécessaire à la sécurité alimentaire est mise en danger;
- l'adaptation aux impacts du dérèglement climatique et d'atténuation des émissions de gaz à effet de serre, et donc en particulier sur la stabilité de l'accès à l'alimentation ;
- les préférences alimentaires et de sécurité sanitaire, en analysant notamment les effets des modèles agro-alimentaires, en aval de la production (stockage, transformation, distribution, etc.) sur la sécurité alimentaire et la nutrition;
- l'équilibre entre offre et demande alimentaire
  dans un contexte de croissance démographique et d'urbanisation qui modifient la demande alimentaire à moyen et à long terme. Sur ce volet prospectif de l'évolution de l'offre et de la demande alimentaire, le rapport devrait analyser les exercices de prospectives qui explorent des hypothèses contrastées quant à l'évolution de la demande de denrées alimentaires et d'aliments pour animaux (exemple : Eating the planet, SEC-¨PIK, 2009 ; scénarios du projet européen Animal change, scénarios Agrimonde et Agrimonde TERRA, etc.)..
- etc ...

Il nous semble que ce rapport HLPE doit partir de ces facteurs fondamentaux pour la sécurité alimentaire et la nutrition afin de (1) identifier ce que l'on sait aujourd'hui des liens entre développement agricole et sécurité alimentaire et nutrition dans les domaines indiqués ci- dessus, (2) analyser en quoi les différents modèles de développement agricole durable (agro-écologie, agriculture biologique, agriculture climato-intelligente, intensification écologique, etc.) ont des effets sur ces différents facteurs de la sécurité alimentaire et de la nutrition, et (3) identifier comment ces différents modèles apportent des solutions pour que le développement agricole durable, y compris l'élevage, soit davantage propice à la sécurité alimentaire et nutritionnelle. Une attention particulière devrait être portée sur les conditions qui faciliteront la transition vers des systèmes agricoles durables qui soient propices à la sécurité alimentaire et à la nutrition, ce qui renforce la nécessité de différencier les modèles de développement agricole durable, puisqu'ils n'ont pas les mêmes conditions de déploiement.

NB : Remarques éditoriales pour ce qui concerne la version française : « Foresight » devrait être traduit par « prospection » (paragraphe A1). « Including animal diseases, pest and diseases » devrait être traduit « maladies animales, les ravageurs des cultures et les maladies des végétaux » (Paragraphe B3).

Par ailleurs, dans un souci de transparence et afin de préparer au mieux la consultation au niveau des pays, le GISA souhaiterait qu'une version révisée des termes de référence suite à la consultation soit publiée.

[1] 75 % des pathologies infectieuses humaines sont d'origine zoonotique

108. Ogougra Akomonla Rodrigue Adjibogoun, Benin

Bonjour Madame/ Monsieur,

Je vous remercie pour les efforts que vous ne cessiez de consentir pour l'atteinte de la sécurité alimentaire et la lutte contre la malnutrition. Par rapport aux champs d'applications proposés et les modules du rapport, je crois que le contenu est en harmonie avec les grands défis à relever en vue d'atteindre la sécurité alimentaire.

Cependant j'ai quelques suggestions par rapport à l'agriculture précisément le secteur rizicole.

En Afrique, la consommation du riz dépasse la production et le déficit est comblé par les importations qui constituent d'énormes pertes de devise pour les pays africains. Ce secteur doit donc être améliorer en vue d'une auto suffisance alimentaire en riz sur le continent vue la croissance démographique. Je souhaiterais que les champs d'applications proposés et les modules du rapport prenne en compte les point ci-dessous ; il s'agit de :

1- Développer des variétés de riz en lien avec les changements climatiques,

2- Rendre le secteur rizicole africain plus compétitifs a travers :

· La satisfaction des normes de qualité et des exigences des consommateurs,

· La diversification de l'offre (riz étuvé, riz longs grains, riz aromatisé, etc...')

· L'emballage (présenté de façon agréable)

· Tenir compte du mode de vie urbain (sacs de riz de 5 Kg, de 10 Kg, etc...)

3- L'aménagement des bas-fonds pour étendre la production rizicole.

4- Utiliser les Biotechnologies pour améliorer la productivité céréalière. En effet Elles permettent de :

· lutter efficacement contre les maladies responsables de la faiblesse des rendements agricoles,

· développer de nouvelles variétés

· respecter l'environnement.

Espérant que ces suggestions seront d'un atout et que ma candidature retiendra votre attention merci d'agréer madame / Monsieur l'expression de mes sentiments distingués.

109. Georgina Bingham, Vestergaard Frandsen SA, Switzerland

Many thanks for this opportunity to engage in this process and provide input.

With reference e-consultation to set the track for the study of the HLPE Report on Sustainable agricultural development for Food Security and Nutrition, including the role of Livestock.

The structure proposed for the report is clear, logical and poses useful headlines and sub points to investigate the aims and question for investigation by the report.

Within the critical overview and discussion of the current projections, including underlying assumptions, focus on practices and their potential roles in pathways towards sustainable agricultural development; whilst the main points are highly relevant there are a few that could be further highlighted:

Regarding improving nutrition; this cannot be achieved by increasing food availability and quality alone; synergy is needed with water safety and public health. It is important to note that simply increasing the nutrition by ensuring a healthy and nutritious diet is not enough. It must be coupled with improved drinking water and sanitation. It is key that improving nutrition and providing safe

drinking water are principles that are run in parallel; since for example to singularly increase the nutritive value of the child's diet is unlikely to achieve the expected impact; as waterborne diseases usually accompanied by diarrhea will counter the positive impact.

With reference to A) 2 a) Gender is highlighted; the role of Livestock, particularly when coupled with Zerograzing, can provide empowerment to the women within the house hold. Not only providing additional income and supplementing family nutrition, it also can reduce the need for women to be engaged in much more labour intensive tasks taking them away from the home for large of parts of the day.

The outcomes from the **International Symposium on Agroecology** for Food Security and Nutrition held in September 2014 at FAO, as well as the **International Assessment on Agricultural Knowledge, Science, and Technology for Development** (IAASTD) and **One Health** would provide valuable sources of supporting documentation for the overall scope of the report.

Within section B) 5 c) under barriers to change, there should be a clear reference to policy harmonisation, incorporation of globally agreed enabling policies and enabling environments necessary to support trade and food systems, supporting the overall goal of sustainable agricultural development for Food Security and nutrition. A set of recommended global and harmonized regional guidelines for **regulatory processes; including new innovations, duty and tax exemptions**for imports of positively impacting solutions and tools could be further evaluated and recommended. As implied, best practices should be investigated to assist/ support market assess/ entry of key (new) tools/ innovations supporting the Food Security agenda.

Scaling of solutions also requires a renewed fresh focus and level of support, and an enabling environment with backstopping from the public sector. **New innovative funding initiatives and models** to support new/ relevant tools to go to scale sustainably should be investigated/ suggested.

A key aspect of addressing food security through sustainable development is through encouraging smallholders to invest more of their resources in agricultural production and also postharvest handling and storage to maintain the high quality produce and reap the rewards of higher value markets. Such innovative initiatives and models must have **"incentivisation"** of producers/ actors at their core as it is a key constraint within many value chains/ food systems within developing regions. This can in turn support/ build capacity long term in country, to provide sustainable improvements in productivity.

Vestergaard is a global company innovating game-changing solutions that contribute to a healthier, more sustainable planet.

Kind Regards

Georgina

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110. Almouzar Mohaly Maïga, Mali

En 2004, le Gouvernement de la République du Mali a mis au point une Politique Nationale de Développement de l'Elevage (PNDE), dont deux des axes stratégiques sont « l'Amélioration de l'alimentation des animaux » et « la Gestion rationnelle des ressources naturelles ». Or en Afrique, et plus spécifiquement dans la zone sahélienne, l'alimentation des animaux (les herbivores) repose prioritairement sur les pâturages naturels, et dans une moindre mesure, sur les cultures fourragères. L'exploitation de ces pâturages naturels commande la mobilité des animaux.

La disponibilité des pâturages naturels est sous la dépendance du régime pluviométrique, caractérisé lui-même par :

- une décroissance régulière des précipitations et de la saison pluvieuse du Sud vers le Nord ;
- une distribution irrégulière des précipitations dans l'espace ;
- une forte variabilité interannuelle.

Au Sahel, la disponibilité des pâturages se caractérise par une instabilité constante de l'offre de fourrages liée au caractère aléatoire des pluies dans le temps et l'espace. Pendant les dernières décennies, la moyenne pluviométrique a baissé de 100-200 mm par rapport à la période d'avant la sécheresse de 1972-1973, pour chaque zone climatique du pays. Toutefois la qualité du fourrage demeure relativement bonne comparativement à la zone sud et cela même pendant la saison sèche. Dans le système pastoral associé aux cultures pluviales, l'avancée du front agricole et la sédentarisation de certaines fractions nomades constituent une menace sérieuse pour la pratique de la transhumance.

Dans le Delta Central du Niger où dominent les pâturages aquatiques dont l'espèce la plus intéressante au plan pastoral est le bourgou, la disponibilité des pâturages est surtout déterminée par le comportement de la crue du fleuve Niger, beaucoup plus que la pluviométrie enregistrée *in situ*. Ainsi la crue, par son amplitude et sa durée, conditionne fortement le disponible fourrager. Ici la qualité du fourrage est aussi bonne et l'eau est essentiellement le facteur régulateur des systèmes de production. Avec la succession des périodes de faible inondation, on assiste à un envahissement des bourgoutières par les champs de cultures.

L'instabilité constante dans l'offre de pâturages, associée au fait que le delta pendant l'inondation (qui dure 3 à 4 mois), est inaccessible au bétail, oblige les animaux à la mobilité.**Celle-ci apparaît comme une nécessité absolue pour l'exploitation judicieuse des ressources pastorales dans les zones arides et semi-arides.** Dans ce type de milieu où les ressources sont variables dans le temps et dans l'espace, une telle stratégie est considérée comme rationnelle par la plupart des spécialistes de la gestion des parcours.

Contrairement aux régions du Nord, les zones soudanienne et pré-guinéenne ont une production en biomasse abondante et relativement stable, à cause de la bonne pluviométrie. La contrainte essentielle réside au niveau de la mauvaise qualité de la biomasse disponible en saison sèche. La teneur en azote du fourrage est tellement basse qu'il assure à peine la couverture des besoins d'entretien des animaux. Cette situation s'explique par la dilution de l'azote que les plantes utilisent pour la production de biomasse.

Les zones Sud du pays sont confrontées à un accroissement des superficies emblavées à cause probablement de la culture du coton et à un afflux massif des troupeaux transhumants. Par exemple, la région de Sikasso occupe la 2eme place en termes d'effectif du bétail après celle de Mopti. Trois catégories de bétail se côtoient dans la région : les troupeaux sédentaires, les troupeaux «transhumants sédentarisés » et les troupeaux transhumants en transit. On assiste chaque année à

une réduction des aires de parcours et l'obstruction de passages des animaux occasionnant de nombreux conflits entre agriculteurs et éleveurs. La problématique du développement de l'élevage dans ces régions ne peut être réglée que dans le cadre du développement concomitant de l'agriculture et de l'élevage.

A cet égard, le **Schéma d'Aménagement du Territoire** est un outil précieux de planification et de gestion de l'espace prenant en compte l'ensemble des activités rurales, dans le cadre d'une définition consensuelle de la vocation des terres.

Malgré les contraintes évoquées ci-dessus, les régions sud du Mali offrent de meilleures perspectives pour le développement des activités d'élevage, une fois la gestion de l'espace maîtrisée. En plus, la disponibilité de résidus de récoltes, de sous-produits agricoles et de sous-produits agro-industriels améliore la ration alimentaire des animaux. Toutefois, les quantités en sous - produits agricoles disponibles pour le bétail demeurent encore insuffisantes quantitativement et qualitativement. A court terme, il y a lieu d'engager des actions visant à l'amélioration des techniques de ramassage, de stockage et de conservation des sous-produits agricoles. La voie vers laquelle il faudra s'orienter reste l'intensification de l'agriculture par l'apport de fertilisants (N et P) et l'introduction de la culture fourragère dans l'assolement là où les conditions sont favorables. En ce qui concerne les sous-produits agro-industriels, l'Etat doit encourager et susciter la création et la diversification de nouvelles unités industrielles de fabrication d'aliment bétail afin de renforcer la production nationale.

Les ressources en eau constituent l'élément fondamental pour le développement socio-économique du Mali, pays à vocation essentiellement agropastorale. Elles sont relativement abondantes, obéissant toutefois à une mauvaise distribution tant sur le plan temporel que spatial. Elles demeurent insuffisamment connues et ne font malheureusement pas l'objet d'un suivi conséquent et régulier, faute de moyens matériels et financiers.

Sur l'immense majorité du territoire national, notamment dans les zones sahéliennes et sahariennes, les eaux souterraines constituent les principales ressources pérennes. Les limitations majeures à leur exploitation résident dans la productivité ponctuelle des ouvrages de captage et le compartimentage des aquifères fissurés ainsi que dans les coûts élevés d'accès à l'eau et d'exhaure dans plusieurs secteurs d'aquifères généralisés à piézométrie déprimée. La qualité chimique des eaux n'est un facteur limitant que dans les zones désertiques et localement seulement dans le reste du pays. Les conditions globales de leur exploitation définies par combinaison d'indicateurs d'accessibilité, d'exploitabilité, de pérennité et de qualité sont favorables à très favorables dans la majeure partie des régions ouest et sud où sont localisées les aquifères fissurés de l'Infracambrien tabulaire et du socle ainsi que pour l'aquifère du Continental terminal/quaternaire de la vallée du Niger et celui du Continental intercalaire. Les conditions d'exploitation se dégradent dans la zone sahélienne pour l'aquifère du Cambrien et surtout pour l'Infracambrien plissé du Gourma ainsi que dans le socle de l'Adrar des Iforas.

Les infrastructures réalisées à travers le pays constituées principalement de puits et forages demeurent encore très insuffisantes pour la mobilisation du potentiel en eau exploitable. Elles sont également mal réparties entre les régions et à l'intérieur de celles-ci

Il est démontré par ailleurs que les régions de Kidal, Tombouctou, Mopti et Ségou avec respectivement 59%, 37.2%, 35.6% et 31.7 % de villages et/ou fractions sans point d'eau moderne demeurent les moins équipées du pays. Elles constituent pourtant les zones d'élevage par excellence. Cette inégalité d'équipement en points d'eau des régions est due non seulement à la concentration humaine, mais aussi et surtout est la conséquence d'un manque de concertation des nombreux intervenants et d'une gestion trop sectorielle des ressources en eau.

La répartition et la mise en valeur inégales des ressources peuvent engendrer soit une sous-exploitation de certaines zones pastorales riches en fourrages, mais inaccessibles par manque de points d'eau pérennes, soit un surpâturage à proximité de certaines sources d'eau permanentes, en particulier les abords des fleuves et lacs ou des puits et forages mal gérés.

Les types de points d'eau sont liés à la nature de la ressource en eau disponible. Les sites de retenue d'eau de surface sont dans certaines conditions sujettes à de fortes pertes par infiltration et par évaporation, qui limitent la durée d'utilisation des eaux stockées aux premiers mois de la saison sèche alors que c'est en fin de saison sèche que les besoins en sont les plus élevés. Les plans d'eau de surface sont aussi un risque potentiel pour le développement des maladies hydriques. L'exploitation des eaux souterraines par des forages ne peut se faire que par l'installation de moyens d'exhaure, ce qui implique la mise en place d'un système de maintenance et d'approvisionnement en pièces détachées.

Dans la zone du Sahel Occidental, l'absence de ressources en eaux de surface pérennes et le caractère discontinu des nappes souterraines ont conduit à l'introduction de méthodes géophysiques pour l'implantation des ouvrages de captage. La conséquence a été que souvent les points d'eau ont été réalisés loin des sites de consommation. Le couplage du pompage solaire avec le pompage par groupe électrogène a été la solution adoptée pour pallier les contraintes d'approvisionnement liées à la chute de débit au niveau des stations solaires. Il a toutefois induit une incidence économique importante et la hausse des coûts récurrents. Or des efforts sont à consentir dans l'animation et la formation des comités de gestion des points d'eau pour une gestion rationnelle et durable des infrastructures. En effet, l'organisation et la formation des éleveurs en associations professionnelles ou villageoises sont encore faibles et insuffisantes pour permettre la prise en charge totale par les éleveurs eux-mêmes de la gestion des nombreux ouvrages réalisés, souvent sans leur participation effective. Cela fait que nombre d'ouvrages restent inexploités du fait de leur mauvaise réalisation et de la non-appropriation par les éleveurs. L'entretien et l'exploitation rationnelle des ouvrages ne sont pas souvent assurés, faute de formation des usagers.

Dans la zone du Delta Central du Niger, la faible connaissance des conditions hydrogéologiques a été à la base des principales difficultés rencontrées par le projet d'élevage la région de Mopti dans la mobilisation des ressources en eau. L'Opération Puits qui avait été commise pour la réalisation des puits pastoraux ne disposait ni de ressources financières suffisantes ni de la capacité technique nécessaire pour exécuter les travaux. Des ouvrages ont certes été réalisés tant par le projet que par d'autres programmes de développement des ressources en eau, mais ces infrastructures demeurent insuffisantes pour couvrir les besoins et par ce fait, des pâturages restent encore inexploités, par manque d'eau.

Dans la zone d'intervention du projet de développement de l'élevage dans le Mali Nord-Est, la mise en œuvre du projet a fortement souffert de l'insécurité dans les zones nord du Mali depuis le début des rébellions récurrentes en 1991 et qui s'est soldée par une réduction de l'enveloppe allouée. Le projet n'ayant, en conséquence pu atteindre les objectifs fixés, le Gouvernement et la BAD décidèrent en 1998 de la mise en place d'un projet de développement rural au niveau du cercle d'Ansongo (PRODECA) dans le but d'accroître rapidement la sécurité alimentaire de la région par des aménagements hydro agricoles d'une part et d'autre part de la relance de l'élevage dans les zones pastorales de la 7ème région.

Les régions pastorales du nord se caractérisent en particulier par un sous-équipement en infrastructures et services divers. Les grandes distances et la mauvaise accessibilité qui augmentent les coûts d'approvisionnement et de maintenance en sont les principales causes.

La loi n°1 004 du 27 février 2001, portant charte pastorale en République du Mali [8] définit les principes fondamentaux et les règles générales régissant l'exercice des activités pastorales et traite de l'accès pour le bétail aux points d'eau naturels et aménagés.

Il apparaît, effectivement que, la répartition des points d'eau n'a pas été, dans nombre de cas, conforme à la logique et aux besoins de l'élevage par suite de défaut de concertation entre les différents services techniques gouvernementaux d'une part et les éleveurs d'autre part, mais aussi d'une connaissance insuffisante des pâturages et de leur répartition.

Des projets de développement de l'élevage (PRODESO, ODEM, Mali-Nord-Est etc.) et des projets et programmes d'hydraulique pastorale (ODIK, Liptako Gourma, CEAO etc.) mis en œuvre après la sécheresse des années 1972-1973 ont contribué à doter le pays de nombreux points d'eau pastoraux. Les ressources en eau utilisables induites par ces ouvrages s'élèvent à 37.964 m3/jour, soit l'équivalent des besoins en eau de 1.265 000 UBT.

De ce qui précède, il devient clair que la survie du cheptel en zone sahélienne dépend prioritairement de la mobilité des animaux, qu'il s'agisse de nomadisme ou de transhumance.

La transhumance des animaux revêt plusieurs formes, qui vont du nomadisme local à la transhumance transfrontalière. Toutes ces formes ont pour objectif essentiel l'utilisation optimale des ressources en eau et en pâturages. Le nomadisme est le mouvement circonscrit à une aire géographique déterminée (comme c'est le cas dans le Gourma Malien ou le Ferlo Sénégalais) et déplace toute la famille du pasteur. La petite transhumance concerne le déplacement à l'intérieur d'une même zone agro écologique et peut être un mouvement cyclique Est-Ouest ou Nord-Sud. Ici, les populations peuvent rester fixées au terroir d'attache ou suivre les animaux. La grande transhumance mène les troupeaux d'une zone agro écologique à une autre, comme du Sahel à la zone à haute pluviométrie, mais à l'intérieur d'un même pays. Ici, c'est généralement les troupeaux seulement qui se déplacent et les bergers ne manquent pas de nouer des alliances fécondes avec les agriculteurs. En effet, ils profitent des résidus de récoltes et fertilisent les champs des paysans grâce aux déjections des animaux. En plus de l'utilisation des ressources fourragères, une des raisons de cette forme de transhumance est la préoccupation des pasteurs d'échapper aux agressions des insectes qui pullulent dans les zones à haute pluviométrie en hivernage. La transhumance transfrontalière est un déplacement des troupeaux (sans les populations) entre plusieurs pays d'une même sous-région. Ici, les bergers ne sont que des commissionnaires, car la gestion de tous les problèmes afférant aux troupeaux et à leur déplacement (notamment la gestion des conflits) restent du ressort du propriétaire.

La transhumance transfrontalière est un phénomène aussi bien économique que socioculturel dont les Etats sahéliens ne peuvent pas se passer actuellement, car elle est la meilleure façon d'exploiter rationnellement les pâturages naturels. Elle a fait l'objet d'accords au niveau de la CEDEAO et de l'UEMOA, notamment le Règlement 07/2007/CM/UEMOA dont l'article 10 traite du principe de la libre circulation des produits et d'équivalence, à savoir que *« les végétaux, produits végétaux, les animaux, produits animaux et les produits alimentaires circulent librement sur le territoire de la Communauté des lors qu'ils sont conformes aux normes de sécurité et de qualité prévus par les textes communautaires en vigueur »* et les articles 3 et 4 de l 'Accord SPS de l'OMC selon le Règlement C/Reg/01/11/10 de la CEDEAO. Le même article 10 précise que « chaque Etat membre accepte sur son territoire tous végétaux, produits végétaux, animaux, produits animaux et produits alimentaires conformes aux normes techniques et sanitaires adoptées par un autre Etat membre ». En son article 75, le Règlement prévoit que les « Etats membres mettent en œuvre les procédures et actions nécessaires afin de faciliter la circulation des animaux transhumants et, en particulier, adoptent le certificat international de transhumance (CIT) de la CEDEAO » prévu par la Décision A/DEC.5/10/98 de la Conférence des Chefs d'Etat et de Gouvernement relative à la transhumance.

La transhumance transfrontalière a aussi fait l'objet de protocoles entre Etats voisins (par exemple, protocoles entre Etats du Liptako Gourma, entre le Niger et le Burkina Faso, etc.) et de législations nationales telles que la loi sur la vaine pâture au Bénin et la Charte Pastorale du Mali. Il est précisé dans cette dernière Charte Pastorale que « *Dans le cadre de la politique d'intégration régionale, les déplacements des troupeaux maliens aux fins de transhumance internationale dans les pays voisins du Mali sont autorisés, sauf dispositions contraires et sous réserve des mesures qui pourraient être prises par les Etats concernés»*. Le détail des règlements régionaux (CEDEAO et UEMOA), des protocoles bilatéraux ou multilatéraux (ABN, CILSS et AGL) et des dispositions nationales est donné dans l'étude « La transhumance transfrontalière en Afrique de l'Ouest : proposition de plan d'action » (Lamar DIOP, FAO, 2012).

La feuille de route de la CEDEAO en matière de transhumance transfrontalière prévoit « que les Etats harmonisent leurs législations sur la question, cela conformément aux dispositions communautaires (CEDEAO et UEMOA) sur la libre circulation des personnes et des biens. Malheureusement, les accords et protocoles sont très peu respectés. Il est généralement délivré un certificat sanitaire pour les animaux en transhumance. Même lorsque les bergers en transhumance se munissent de tous les documents requis, ils n'échappent pas aux tracasseries routières de la part des PDG (Police, Douanes et Gendarmerie). Avec la décentralisation, les collectivités territoriales sont plutôt préoccupées par la mobilisation de ressources financières, alors que, théoriquement, elles devraient veiller à la gestion des terroirs et des ressources naturelles de leur ressort. En effet, aujourd'hui, l'éleveur transhumant peut être astreint à payer un droit séjour à chaque collectivité traversée, le taux variant de 500 F CFA par bovin par jour à 5 000 F CFA par bovin par séjour. Par ailleurs, le non-respect du certificat international de transhumance de la CEDEAO apparaît plutôt comme une solution imposée par les conditions. En effet, la décision A/DEC.5/10/98 prévoit que l'éleveur qui va en transhumance précise à l'avance, entre autres, son point de départ, son itinéraire et sa destination. Il est constant que le berger qui mène des troupeaux en transhumance se préoccupe très peu d'itinéraire défini à l'avance. Ses déplacements sont au gré des informations qu'il reçoit sur la disponibilité de bons pâturages et points d'abreuvement, ainsi que l'absence de foyers de maladies et la non obstruction des couloirs de passage par des cultures. La décision de partir en transhumance relève de l'éleveur propriétaire. Les bergers doivent simplement informer les propriétaires pour obtenir leur approbation avant le départ. Dans ce cas, c'est le propriétaire d'animaux qui décide également de l'itinéraire et des zones d'accueil, en se fondant sur les axes traditionnels, les rapports sociaux tissés depuis des générations avec les zones de transit et d'accueil, et sur les conseils des structures administratives. Toutefois, le berger transhumant dispose d'une marge de manœuvre pour adapter le parcours en fonction des informations obtenues au cours du déplacement. A cet effet, les renseignements qu'il recherche concernent l'état des pâturages et des points d'eau, mais aussi les patrouilles forestières, les maladies animales, la localisation de nouvelles zones cultivées et les champs maudits, etc. Il jouit des droits d'usage pastoraux, c'est-à-dire l'ensemble des droits d'exploitation des ressources naturelles à des fins pastorales, reconnus et protégés juridiquement, et acceptés par tous les Etats signataires d'accords ou de protocoles. En contrepartie, le pasteur a l'obligation de surveiller et de contrôler ses animaux en déplacement et de protéger les biens d'autrui. Le pasteur en transhumance transfrontalière (ou internationale) est tenu au respect de la législation des pays d'accueil relative notamment, aux aires protégées, aux espaces classés ou mis en défens et à la police sanitaire des animaux.

Toutefois, la vision de la CEDEAO se résume comme suit : *« la mobilité doit être affirmée comme un droit fondamental pour les éleveurs transhumants qui doit être garanti par l'Etat et les collectivités ».* Cette garantie doit se traduire, entre autres, par des aménagements pastoraux conséquents (tracé des pistes de transhumance, création de gîtes d'étape le long des pistes, c'est-à-dire des aires de stationnement ou de séjour des troupeaux qui jalonnent les pistes de transhumance, renforcement

et équipement des postes vétérinaires aux frontières, provision de dépôt de médicaments vétérinaires, construction de parcs de quarantaine, etc.). Toutefois, de tels aménagements coûtent cher et ont besoin d'être sérieusement étudiés. Le Mali a aménagé la piste commerciale du bétail entre Nara et Kati à la fin des années 1970. Les gîtes d'étape ont été rapidement transformés en villages et leurs alentours en terroirs agricoles, car la gestion conséquente n'a pas suivi et il n'a pas été prévu de mesures de rechange, à savoir l'aménagement de points d'eau pour les établissements humains de la zone traversée par la piste commerciale du bétail. L'étude de la FAO mentionnée ci-dessus, citant DIAKITE (2003), rapporte que « dans la région de Zinder au Niger, le couloir international de transhumance avec ses 500 m de largeur est devenu la plus grande aire de pâturage du département de Kantché. La forte pression démographique (densité de 118 hts/km2) et le problème d'accès à la terre ont mis à mal le couloir. C'est ainsi qu'un quartier entier s'est développé dans le couloir, de même que trois bois de village, un cimetière et un établissement scolaire... »

L'empiètement des cultures sur les pistes de passage des animaux transhumants (qu'il s'agisse de pistes pastorales locales, c'est-à-dire les chemins affectés au déplacement des animaux à l'intérieur d'une collectivité déterminée, ou de pistes de transhumance, c'est-à-dire les chemins affectés au déplacement des animaux entre deux ou plusieurs collectivités déterminées) constitue, à n'en point douter, une source de conflits entre éleveurs sahéliens et agriculteurs sédentaires des zones sud. L'absence d'aménagement des aires de pâturages protégées oblige les animaux à chercher leur pitance là où ils peuvent.

La feuille de route de la CEDEAO mentionnée ci-haut préconise également « *l'adoption d'une charte de gestion des parcours prenant en compte les postes d'entrée, les couloirs de passage, les zones de pâturage, les postes vétérinaires et les points d'eau pastoraux* ». Au niveau de l'Union, il est impératif de prendre l'idée en charge et décider de qui fera quoi, comment et quand. En effet, il ne suffira pas seulement d'adopter une Charte théorique où des aménagements théoriques seraient consignés, mais il faut dès le départ songer aux investissements à réaliser et leur répartition entre l'UEMOA, la CEDEAO et leurs partenaires d'une part et, d'autre part, les Etats membres.

C'est après cela seulement que l'on pourra exiger le respect des lois et règlements.

Malgré les effets bénéfiques de la transhumance transfrontalière, force est de reconnaître qu'elle permet difficilement de lutter contre la propagation des maladies, surtout celles dites émergentes ou les maladies animales transfrontalières (TAD). Le cas préoccupant d'une nouvelle forme de babésiose transmise par des tiques « importés » d'Amérique Latine est une parfaite illustration de la situation.

Durant leur déplacement, les animaux disséminent ou sont en contact avec un certain nombre de germes pathogènes, dont les plus redoutés chez les animaux sont les germes de la fièvre aphteuse, de la peste des petits ruminants, de la péripneumonie contagieuse bovine, les trypanosomiases et les charbons. Des maladies comme la dermatose nodulaire bovine et la variole sont aussi redoutées.

Le certificat international de transhumance (CIT) de la CEDEAO a le mérite d'exister. Mais sa mise en œuvre demande de la circonspection. En effet, c'est un document de la communauté sous régionale, mais qui, à certains égards, souffre de négligence de la part des Etats membres qui pourtant l'ont souverainement adopté. Les difficultés de son application (comme mentionné ci-haut) du fait du niveau de compréhension des bergers, ne doivent pas constituer une cause de rejet. Au contraire, les causes doivent être répertoriées, analysées, évaluées et des solutions de rechange proposées. Par contre, il est difficilement tolérable que des agents de l'Etat fassent fi des dispositions des règlements communautaires et qu'ils ne soient pas rappelés à l'ordre. Rien n'empêche, à la traversée d'une frontière, d'établir l'itinéraire *a posteriori* et aider le berger à élaborer un projet d'itinéraire pour la suite du trajet (car il a aussi droit à l'information que devraient lui fournir les services techniques sur la situation dans le pays), projet d'itinéraire qui sera communiqué par les moyens les plus appropriés aux autorités du pays suivant. Ce projet d'itinéraire sera mis à jour à la prochaine

étape, ce qui permettra de réussir un suivi du parcours du troupeau transhumant. Ceci appelle d'autres notions relatives au contrôle SPS des animaux, notamment l'identification des animaux et la traçabilité animale. D'après le Code Terrestre, « l'identification des animaux et la traçabilité animale sont des outils de gestion de la santé animale (notamment des zoonoses) et de la sécurité sanitaire des denrées alimentaires. Ces outils peuvent améliorer significativement l'efficacité des activités telles que la réponse aux foyers de maladie ou aux incidents liés à la salubrité des denrées alimentaires, les programmes de vaccination, les méthodes d'élevage, le zonage et la compartimentation, la surveillance, les systèmes de prise en charge précoce et de déclaration rapide des maladies, les contrôle des mouvements d'animaux, les inspections, la certification, l'équité des pratiques commerciales ou l'usage, au niveau de l'exploitation, des médicaments vétérinaires, des aliments pour animaux et des pesticides ». Au moins pour la vaccination, on peut revisiter les pratiques du PC 15 des années 1960 qui consistaient à marquer d'un trèfle à l'oreille tous les animaux vaccinés contre la peste bovine. Sinon, il peut être fait recours au marquage à la neige carbonique avec indication de la région de provenance.

Lorsque l'identification individuelle pratiquée dans les élevages modernes et contrôlés n'est pas possible (comme c'est le cas dans l'élevage traditionnel et/ou transhumant), l'autorité vétérinaire doit fournir des garanties suffisantes en termes de traçabilité. Dans un tel cas, l'identification concernera surtout la zone ou la région d'élevage, l'identité du troupeau (ou de son propriétaire ou du berger qui le conduit en transhumance). On peut cependant envisager l'identification par marquage au Scanner avec puces RFID reliées à un ordinateur portable connecté à la base de données communautaire.

Dans tous les cas, l'identification des animaux et la traçabilité animale, ainsi que les mouvements des animaux, doivent être placés sous la responsabilité de l'autorité vétérinaire du pays. La mise en application d'un système d'identification des animaux reposera, selon le Code terrestre, sur un plan d'action (précisant le calendrier de mise en œuvre et incluant les jalons et indicateurs de performance, les ressources humaines et financières, entre autres) et comportant certaines activités comme suit :

Ø la communication dont les stratégies doivent être adaptées à la cible en prenant en compte des éléments tels que le niveau d'instruction et les langues parlées dans le pays ;

Ø les programmes de formation continue pour assister les services vétérinaires et les autres acteurs concernés dans la phase de mise en œuvre ;

Ø la fourniture d'une assistance technique conséquente et adaptée aux besoins pour faire face aux problèmes pratiques susceptibles de se poser lors de l'élaboration et de la mise en œuvre du plan d'action du système d'identification des animaux.

Rien de tout cela n'est possible sans une étude préalable de faisabilité sociale, technique et économique. En effet, on devra éviter de faire une vue de l'esprit et déduire quelque chose dont les élevages traditionnels ne tireront aucun avantage immédiat et qui sera difficile de mise en œuvre par les premiers acteurs concernés. Une telle étude prendra en compte certains des éléments proposés par le Code terrestre, à savoir :

Ø les populations animales, espèces, distribution et gestion des troupeaux ;

Ø la structure des exploitations et des établissements industriels, production et localisation ;

Ø la santé animale, la santé publique, les questions commerciales, la pratique de l'élevage ;

Ø le zonage et la compartimentation ;

Ø les schémas de mouvement des animaux (transhumance notamment) ;

Ø la gestion de l'information et de la communication,

Ø la disponibilité des ressources (humaines et financières) ;

Ø les aspects socioculturels (connaissance des problèmes et des perspectives par les acteurs concernés) ;

Ø la législation en vigueur et les besoins à long terme ;

Ø les options technologiques disponibles :

Ø le(s) système(s) d'identification existant(s) ;

Ø les bénéfices attendus des systèmes d'identification des animaux et de la traçabilité animale et l'identité des bénéficiaires

Quant au système de traçabilité des animaux, il est une condition préalable à l'évaluation de l'intégrité d'un compartiment d'élevage, étant donné que « *tous les animaux qui se trouve dans un compartiment doivent être identifiés et enregistrés individuellement de manière à ce que leur parcours et leurs déplacements puissent être documentés et contrôlés* ». Il va de soi que ce genre de traçabilité ne sied pas tout à fait à l'élevage extensif non contrôlé. Au-delà du concept, il convient de préciser que la traçabilité permet de remonter la filière d'une maladie animale, d'une zoonose, ou d'un organisme nuisible ou même d'adopter les mesures idoines pour endiguer une crise zoosanitaire. Il est important de savoir de quel élevage situé en un lieu donné provient la carcasse de l'animal abattu à Port Bouët et qui présente des symptômes de charbon. Un bon système de traçabilité réduirait aussi substantiellement les conflits résultant de vols ou de disparitions animaux, que ce soit *in situ* ou en transhumance.

Malgré la difficulté apparente de la traçabilité des animaux dans les conditions actuelles, il appartient aux cadres du sous-secteur élevage de l'UEMOA de réfléchir à l'adaptation qui pourrait en être faite dans le cadre des contrôles SPS. Une première étape pourrait concerner les élevages péri urbains à caractère industriel et commercial. Déjà dans ces élevages les animaux sont identifiés et suivis de la naissance à leur sortie de la ferme. Il est tenu des fiches individuelles de performance. Malheureusement la chaîne est interrompue dès que les animaux quittent leur ferme.

A L'heure actuelle, le Règlement 07/2007/CM/UEMOA est muet sur la notion de traçabilité. C'est pourquoi il peut paraître nécessaire d'entreprendre une étude pour cerner les contours de la question dans le cadre de l'Union (et pourquoi pas, de la CEDEAO) et les possibilités de sa mise en œuvre.

L'éventualité d'éclosion de foyers de maladies rend indispensable de prévoir des systèmes de quarantaine renforcée pour les animaux en déplacement. La quarantaine est définie dans le glossaire du Règlement 07/2007/CM/UEMOA en tant que le *« confinement officiel d'articles règlementés, pour observation et recherche ou pour inspection, analyses et/ou traitementsultérieurs* ». Telle que formulée, la quarantaine ne semble pas prendre en compte les animaux vivants. L'article 68, alinéa 3 précise que les *« animaux non accompagnés du certificat sanitaire à l'importation seront refoulés ou mis en quarantaine aux frais de leurs propriétaires. Au terme de la quarantaine, les animaux sont soumis aux examens vétérinaires et aux interventions nécessaires, notamment aux soins et vaccinations, aux frais de leurs propriétaires, en conformité avec le programme de surveillance* ». Ces différentes dispositions ne font aucune référence à l'organisation de la quarantaine, tandis que sa durée est laissée à l'initiative des Etats (c'est dire qu'elle peut varier d'un Etat à l'autre). Tant le Règlement 07/2007/CM/UEMOA que le Règlement C/REG.21/11/10 de la CEDEAO ne précise les moyens de fonctionnement dont doivent être dotées les stations de quarantaine. Or, la quarantaine doit être organisée et menée de façon à disposer d'un gîte d'étape avec des facilités de prélèvement et d'analyse rapide de sang ou de fèces. C'est un domaine où la Commission de l'UEMOA devrait prendre des initiatives volontaristes en amenant les Etats membres à accepter et/ou continuer des actions conjointes à leurs frontières communes en

matière d'organisation et de gestion de la quarantaine. En effet, le Code terrestre dispose qu'en cas de survenue de foyers de portée limitée dans un pays ou une zone antérieurement indemne d'une maladie, l'établissement d'une zone de quarantaine doit reposer sur une riposte rapide en veillant, entre autres, aux points suivants :

Ø **«**toute circulation d'animaux et de marchandises doit être interdite dès qu'une suspicion de lamaladie en question a été déclarée ;

Ø il convient d'appliquer une politique d'abattage sanitaire ou toute autre stratégie de contrôle efficace pour éradiquer la maladie ;

Ø il convient de mettre en place des mesures pour prévenir la propagation de l'infection à partir de la zone de confinement vers le reste du pays ou de la *zone*, entre autres, une surveillancepermanente dans la zone de confinement.

Ø la zone de confinement doit être gérée de manière à pouvoir démontrer que les marchandisesdestinées aux échanges internationaux proviennent d'un secteur extérieur à la zone de confinement ».

Etant donné qu'en matière de mesures de protection zoosanitaire, l'UEMOA dispose qu'il appartient à l'Etat concerné d'organiser sur son territoire lesdites mesures, il convient de faire preuve de solidarité au niveau de l'Union, et cela, au-delà des mesures d'harmonisation des pratiques. C'est dire que l'action concertée devient indispensable.

Pour que le poste de quarantaine soit opérationnel et réponde à sa mission, il doit, à l'instar du gîte d'étape, comporter des infrastructures comme l'aire de circulation, une rampe d'embarquement, un magasin de stockage de foin ou d'aliment bétail, des mangeoires, des abreuvoirs, un dépôt de médicaments vétérinaires, des ombrières, un bureau du personnel, une toilette, un logement de gardien, une source d'eau potable, un abattoir sanitaire et un mini laboratoire comme indiqué ci-haut. D'autres infrastructures et équipements peuvent être prévus, notamment :

Ø les clôtures ou autres moyens efficaces de séparer physiquement les animaux ;

Ø l'accès des véhicules, y compris les opérations de nettoyage et de désinfection ;

Ø les installations d'isolement pour les animaux introduits ;

Ø les procédures d'introduction du matériel et de l'équipement ;

Ø l'élimination des carcasses, du fumier et des déchets ;

Ø les mesures destinées à prévenir l'exposition à des vecteurs mécaniques ou biologiques vivants tels qu'insectes, rongeurs et oiseaux sauvages ;

C'est ainsi seulement que l'on pourra s'acheminer progressivement vers la constitution de zones indemnes (ou de zones de protection), la zone indemne étant définie comme une zone dans laquelle *« l'absence de la maladie considérée a été démontrée par le respect des conditions stipulées dans le Code sanitaire pour les animaux terrestres de l'OIE pour la reconnaissance du statut de zone indemne. A l'intérieur et aux limites de cette zone, un contrôle vétérinaire officiel est effectivement exercé sur les animaux et les produits d'origine animale, ainsi que sur leur transport ou leur circulation* ». Au niveau de l'Union, la déclaration de pays ou de zone indemne d'une maladie se fait au niveau national par chaque Etat membre. Les Etats membres informent la Commission de l'UEMOA de cette déclaration et de la soumission d'une demande de certification de zone indemne auprès des instances régionales ou internationales compétentes (L'article 69 du Règlement 07/2007/CM/UEMOA)

L'article 67 du Règlement C/REG.21/11/10 de la CEDEAO reprend la même formulation qui est moins précise que celle du Code terrestre de l'OIE. En l'absence de la déclinaison des conditions à remplir

pour déclarer une zone indemne de maladie, on voit mal comment l'Etat devra procéder. Or, dans les pays du Sahel en particulier, et dans les Etats membres de l'UEMOA en général, très peu d'effort est fourni pour réaliser l'objectif de zones indemnes. En effet, il s'agit d'un problème à plusieurs dimensions :

Ø Aujourd'hui encore, les éleveurs n'ont pas compris (ou négligent) la portée de la vaccination, avec comme résultats que seulement une partie du troupeau est vaccinée. Durant la transhumance, ils font beaucoup plus appel aux pharmacies « par terre » qu'aux médicaments autorisés. Donc une certaine dose de formation et de sensibilisation reste encore nécessaire ;

Ø La mobilité des animaux et l'étendue des parcours ne permettent pas de traiter tous les animaux, *a fortiori* en même temps. Sans vouloir remettre en cause cette mobilité (dont la transhumance transfrontalière fait partie), il y a lieu de définir les parcours pâturables, par qui et leur période d'utilisation. Cela facilitera la surveillance épidémiologique ;

Ø La dimension politique est que les gouvernants de l'espace UEMOA fassent leur la notion de « zones indemnes » et travaillent à leur réalisation. C'est là, au-delà des slogans et des déclarations sans lendemain, un premier pas pour les techniciens de réaliser leur objectif. D'autres pays en Afrique (en l'occurrence le Botswana) ont réussi le pari : l'UEMOA devrait pouvoir s'inspirer leur expérience.

Quant à la zone de protection, elle peut être établie dans le but de préserver le statut sanitaire d'animaux détenus dans un pays ou une zone qui avoisine des pays ou zones ayant un statut zoosanitaire différent. Les mesures de prévention de l'introduction d'agents pathogènes doivent prévoir la conduite d'opérations de renforcement du contrôle des mouvements des animaux et d'opérations de surveillance (identification des animaux et traçabilité animale, vaccination des animaux sensibles, vaccination ou contrôle des animaux déplacés, amélioration des procédures de nettoyage et de désinfection, mise en place de campagnes de sensibilisation du grand public, des éleveurs, des marchands de bétail et des vétérinaires pratiquants).

111. UK Food Group, United Kingdom

Contribution to consultation on the
draft scope of the HLPE report on
Sustainable agricultural development for food security and nutrition, including the role of livestock

We welcome the timely focus of this report on *Sustainable agricultural development for food security and nutrition, including the role of livestock*. As the scoping document states, livestock is at the centre of current global food systems: 75% of all agricultural land is dedicated to grazing or growing feed crops6, and 36% of global crop production (by calories)7 and 29% of all marine capture fisheries

6 Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M. & Zaks, D. P. (2011). "Solutions for a cultivated planet." Nature, 478(7369), 337-342.

7 Cassidy, E. S., West, P. C., Gerber, J. S., & Foley, J. A. (2013). "Redefining agricultural yields: from tonnes to people nourished per hectare." Environmental Research Letters, 8(3), 034015.

landings (by weight) 8 are destined to feed animals. How many animals we raise and how we do it has a direct impact on the amount and quality of food we produce.

We also welcome the inclusion of a critical assessment of food demand projections. Many projections assume a "business as usual" evolution of consumption patterns. However, there is enough evidence to show that supply-side measures won't be enough to ensure the sustainability of our food systems and that demand-side measures will also have to be part of the solution. If consumption patterns change, the requirements to fulfil them, will also change. We should not see those projections as an inevitable future we must cater to, but as guides to help us shape the future and achieve truly sustainable and sufficient food production.

However, livestock goes beyond just food. On one hand, it's a major driver of some of the most threatening impacts we currently face:

- Livestock is responsible for 14.5% of anthropogenic GHG emissions9;
- the expansion of pastures and cropland expansion (driven by the increasing demand for feed crops) and the associated deforestation and biodiversity loss; and
- the high levels of animal protein intake in some societies plays an undeniable role in the rise of obesity and related non communicable diseases. Not just because of the direct intake of meat, milk and eggs, but because of the associated consumption patterns (fried chicken, burgers, processed foods, etc.).

On the other hand, livestock sustains the livelihoods of people all around the world, including the most vulnerable and food insecure among us. Livestock is key in providing valuable nutrients but also many other services, ranging from draught power to work the land and transport goods, to roles in maintaining community structure, acting as indicators of social status and as savings mechanisms that increase the resilience of people's livelihoods to extreme or unpredictable events.

Discussions about livestock tend to be polarized. We believe this to be caused by a lack of distinction between different production systems and a lack of a "food systems" approach with an integrated view of crops and livestock production, as well as of food consumption patterns. This report presents an excellent opportunity to distinguish between different systems and identify their advantages and disadvantages in different contexts. We would like the report to explore the differences between different systems from different perspectives, including but not limited to:

- The use of human-edible crops as animal feed (and other aspects of the food vs feed debate), including impacts on food security and resource use efficiency.

8 Metian, A. G. T. M. (2009). "Fishing for feed or fishing for food: increasing global competition for small pelagic forage fish." AMBIO: A Journal of the Human Environment, 38(6), 294-302.

9 Gerber, P. J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J. & Tempio, G. (2013). *Tackling climate change through livestock: a global assessment of emissions and mitigation opportunities*. Food and Agriculture Organization of the United Nations (FAO).

- The concept of virtual nutrient and water trade. Water and many nutrients (effectively, soil) are depleted from feed producing regions and accumulated in livestock intensive areas (with serious consequences in both cases).
- A better appreciation of the multiple uses of livestock. In many contexts, livestock's value cannot be restricted to the provision of meat, milk and eggs. They provide many services that have direct and indirect implications for food security. In some cases, these "non-market" values can be higher than the market ones.
- An integrated view of rural development. Accounting for differences in access to market (including both formal and informal markets), employment opportunities and conditions, as well as other related factors as gender, education and cultural traditions.
- The use of antibiotics in farm animals, its effect on the emergence of antibiotic resistance and the risk this presents to human health.
- The need to better integrate livestock and crop production. To close the nutrient cycle, minimize the dependence on agrochemicals, increase the resilience of food production and increase the diversity of our diets.
- Access to and free exchange of knowledge. To ensure the prevalence of farmer to farmer transfer and making sure that indigenous, traditional and localized knowledge is taken into account as a valuable source and not ignored by agricultural extension (bottom up, rather than top down approach); knowledge is not only derived from transferred practices and technologies.
- Identification of systems in which livestock is central to the way of life of people and not easily replaceable by any other activity (e.g. pastoralists, crofters)

We are convinced that we cannot reconcile several aspects of current food systems, without changing our approach to livestock. At the same time, it's important to be aware of the possible adverse effects that proposed measures to improve food security could have on other aspects of sustainability.

Besides these comments, and opinions about the general direction of the report, we are attaching some proposed changes to the actual text of the scoping document that crystalize some of our thinking.

Proposed draft Scope of the HLPE Report by the HLPE Steering Committee

A) Context: drivers and challenges

1. The HLPE report will begin with a critical assessment of existing projections of future food demand, including animal-sourced food. It will review projections by FAO and other foresight reports with particular reference to the rapid escalation of the demand for animal-source foods and feed, edible oils and non-food products, including the assumptions which are grounding these projections, on evolution of diets as well as on food losses and waste, and trade.

2. The report will then assess implications (challenges and opportunities) of these trends for:

a) food security and nutrition (in particular nutrient deficiencies, obesity and chronic diseases), the realization of the right to food, highlighting gender considerations, as well as inequalities;

b) access to land and natural resources;

c) agricultural production and productivity increases;

d) social and economic development, including rural employment and an understanding of the multiple roles of livestock;

e) the health of the environment and ecosystems, including climate change, biodiversity and soil health;

f) human health (including antimicrobials resistance and food borne pathogens like campylobacter, salmonella and E. coli;

g) animal welfare;

h) knowledge generation and dissemination.

B) Achieving sustainable agricultural development for food security and nutrition

3. In the light of these projections, the report will review the sustainability challenges for crop and livestock-based agricultural and food systems, including pastoral systems, in diverse agro-ecosystems and for various farm sizes, taking account of threats to the sustainability of these systems, including animal diseases, pest and diseases, animal welfare and energy needs.

4. The report will identify objectives and elements of sustainable approaches to agriculture, including livestock, ensuring food security and nutrition for all without compromising the economic, environmental and social bases for the food security and nutrition of future generations. It will identify critical priorities ("tipping points" that need absolutely to be addressed) and objectives. All three dimensions of sustainability will be included and the report will consider relevant metrics that capture the multiple roles of livestock.

5. The report will explore pathways towards sustainable crop and livestock-based systems, and options for managing the transition to sustainable systems:

a) Given the role of livestock as an engine for the development of the agriculture and food sector, as a driver of major economic, social and environmental changes in food systems worldwide, particular attention will be paid to the role of livestock in these pathways.

b) The investigation will encompass practices, including agro-ecological practices, diversification at all scales, as well as broader perspectives from food chains to food systems (including consumption patterns and considering food chain distortions due to inequalities between different actors), local versus global approaches, trade and investment.

c) The report will identify barriers to change, including in institutions, organizations, policies, market structures and governance, and potential options to overcome them.

d) It will cover the enabling environment necessary to trigger or accompany transition: the role of public policies and tools to promote and facilitate transition to sustainable systems.

C) Achieving more sustainable diets to help achieve sustainable agricultural development for food security and nutrition

6. The report will explore pathways towards sustainable global diets – based on regional and local needs and status of food security in a country/region. It should identify hotspots for consumption and explore options for managing the transition to sustainable diets looking at options for policy and business interventions in areas such as:

a) **Research into behaviours** - identifying barriers for adoption of diets which reduce environmental impact including specifically eating less meat and increased plant protein

b) **Policies which can promote good practice** for instance in government procurement (in schools, hospitals, armed forces, government buying) to promote low impact diets and as appropriate reduced industrial livestock consumption in the public sector.

c) **Fiscal policies** which can be used to drive consumers towards more sustainable diets and which can drive producers to deliver for those shifting diets: including but not exclusive to farm support/subsidies; taxation in the food chain eg taxation of high impact foods ; funding of educational and promotional schemes to promote healthier sustainable diets such as consumer guidance and business support; and other areas of impact in the food system which would promote more sustainable diets

d) **Investment** which can be used to support sustainable protein delivery, food supply chains and food trade.

7. Conclusions and recommendations for policie

112. Government of the United States of America

CFS Secretariat,

On behalf of the Government of the United States of America we take this opportunity to submit the following suggestions on the scope and building blocks of the HLPE report titled *Sustainable agricultural development for food security and nutrition, including the role of livestock.* Our consolidated comments are shown below in **Red**.

A) Context: drivers and challenges

1. The HLPE report will begin with a critical assessment of existing projections of future food demand, including animal-sourced food. It will review projections by FAO and other foresight reports with particular reference to the rapid escalation of the demand for animal-source foods and feed, edible oils and non-food products, including the assumptions which are grounding these projections, on evolution of diets as well as on food losses and waste, and trade.

2. The report will then assess implications (challenges and opportunities) of these trends for:
   a) food security and nutrition (in particular **alignment with dietary guidance**, nutrient deficiencies, obesity and chronic diseases), improving access **to diversified and healthy diets**, highlighting gender considerations, as well as inequalities;
   b) access to land and natural resources;
   c) agricultural production and productivity increases;
   d) economic development;
   e) the health of the environment and ecosystems, including climate change and biodiversity.

B) Achieving sustainable agricultural development for food security and nutrition

3. In the light of these projections, the report will review the sustainability challenges for crop and livestock-based agricultural and food systems, including pastoral systems, in diverse agro-ecosystems and for various farm sizes, taking account of threats to the sustainability of these systems, including animal diseases, pest and diseases, and energy needs.

4. The report will identify objectives and elements of sustainable approaches to agriculture, including livestock, ensuring food security and nutrition for all without compromising the economic, environmental and social bases **(social, economic, environmental, and health)** for the food security and nutrition of future generations. It will identify critical priorities ("tipping points" that need absolutely to be addressed) and objectives. All three dimensions of sustainability will be included and the report will consider relevant metrics.

5. The report will explore pathways towards sustainable crop and livestock-based systems, and options for managing the transition to sustainable systems:
    a. Given the role of livestock as an engine for the development of the agriculture and food sector, as a driver of major economic, social and environmental changes in food systems worldwide, particular attention will be paid to the role of livestock in these pathways.
    b. The investigation will encompass practices, including agro-ecological practices, diversification at all scales, as well as broader perspectives from food chains to food systems (including consumption patterns), local versus global approaches, trade and investment.
    c. The report will identify barriers to change, including in institutions, organizations, policies and governance, and potential options **(including their likely consequences)** to overcome them.
    d. It will cover the enabling environment necessary to trigger or accompany transition: the role of public policies and tools to promote and facilitate transition to sustainable systems.

6. Conclusions and recommendations for policies and actions.

113. Jeevananda Reddy, India

I suggest the following sections need to be added:

A/2/f -- pollution [air, water, soil & food] with subsections: impact on food production; impact on health of lifeforms, impact on nutrition quality/human health

A/2/g -- Animal husbandry & horticulture crop productivity

Dr. S. Jeevananda Reddy

114. Ulf Magnusson, Swedish University of Agricultural Sciences, Sweden

Dear Madame/Sir at the HLPE-secretariate;

As a Swedish candidate for the HLPE project Team you kindly invited me to comment on the draft scope of this work, so I hereby take that opportunity:

Needless to say, the draft deal with the vast majority of the most important issues under this theme. It is "just" a matter of balance and how to communicate the outcome of the analyses. In think it is three issues that are particularly critical and that I want to emphasize:

- That the consumption (and production) of the highly nutritional animal source food is very asymmetrical distributed over the world AND WITHIN countries and societies as well.
- That the nutritional security is the main reason for keeping livestock (besides the obvious livelihood aspects) in most parts of the world, BUT there are, often marginalized and vulnerable, societies where livestock is outmost important as a food security mean.
- That the environmental impact of livestock is very complex and diverse and vary tremendously between systems and countries.

Well, this is very challenging, important and interetsting subject, but I think I end my e-mail here….

Sincerely,

Ulf Magnusson, DVM, PhD, Dipl ECAR

Professor and Head of Division

Sveriges lantbruksuniversitet, SLU

Swedish University of Agricultural Sciences

Department of Clinical sciences

Division of Reproduction

115. Rodios Gamvros, Greece

Dear Mme/sir

We apologize that due to late notification by our national contact point we post late our comments.

Hellenic Food industry Federation believes that sustainability of agriculture in general cannot be achieved alone, meaning without ensuring sustainability of whole Argo-food supply chain.

Our federation in the frame it's national projects within European technological platform "Food for Life" has contacted a study on sustainability and development of Agro-food sector.

Key point of the outcome of this study is that must endorse motto "From farm to fork" not only for food safety issues but also on sustainability and development of whole supply chain.

As described in this study agriculture needs to be connected as business partner to food processors and become an equal member of agro-food supply chain.

The tool to archive this scope is primarily contract farming models, adapted in world areas to actual market conditions.

Such a model not only ensure success shares to farmers but mainly promotes practices on environmental farming and food safety at farm level

Examples can be:

- Reduced use of agrochemical with positive impact on food safety and environment
- Reduced energy consumption for agricultural activities

- Reduced waste and better management of unavoidable wastes
- Increased social impact
- Increased entrepreneurship of farmers

The report needs to promote practices as above and to provide local societies with simple models for design and deployment of them, including training notes, working patterns and government manuals

At your disposal for further consultation

Ρόδιος Γαμβρός

Rodios Gamvros