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

Water and Food Security

From 21 January to 28 February 2014

<http://www.fao.org/fsnforum/cfs-hlpe/water-food-security-scope>

– Collection of contributions received –

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Topic

The CFS, in its 40th session, requested the HLPE to prepare a report on Water and Food Security for its 42nd session in 2015, as follows:

“In the follow-up of major international events such as Rio+20 and the World Water Forum, the HLPE will further explore the “water and food security” issue. Water has an important role in food security through its multiple impacts on: health and nutrition (drinking water, cooking water, sanitary aspect/diseases), on agricultural production (access to water, water management, improvement of irrigation and dryland agriculture) and on food processing (water management, quality of water...). This topic should be seen in the wider context of the nexus between water, soil, energy and food security which is recognized as a pillar of inclusive growth and sustainable development. The HLPE report could put together information on how countries and regions are addressing the management of this important resource.

Through a food security lens, the HLPE will focus its analysis on water for agricultural production and food processing, taking also into account gender-related aspects. More specifically, the HLPE could, from a food security perspective, assess the impacts of water management practices on food security, including water usage for agricultural production, food processing and other ways of consumption. It should also consider in particular issues related to the sustainability of irrigation systems, the salinization of agricultural land and the reduction of the quality of the ground water. On this basis, it will give appropriate recommendations so as to improve water and food security policies, as well as coordination among the different fields and actors at all levels, with a long-term perspective.”

As part of its report elaboration process, the HLPE is launching an e-consultation to seek views, public and expert feedback and comments, on the following proposed scope and building blocks of the report, outlined below.

The HLPE ambitions to synthesize and analyze available evidence expected to be useful to support action by the public and private sectors and civil society. Based on this evidence a set of policy recommendations will be made.

1. Water use for health, nutrition and food security - global and regional trends

Water is central to food and nutrition security. Safe drinking water and sanitation are fundamental to good nutrition, the health and dignity of all. Water is also key for food security because it is an important and essential input for agricultural production, food processing, preparation and cooking of food.

First, the HLPE proposes to summarize the latest evidence-based information on the use of water for health and nutrition (drinking water, cooking water, sanitary aspect/diseases), and for food and agriculture, - indicating how much water is consumed for the production, processing, and consumption of food as well as for sanitation and drinking water. This section of the report would also include:

- Metrics on access to safe drinking water and adequate sanitation: trends in the number of people who lack access to safe water and adequate sanitation. Latest data and trends in water consumption by the food and agriculture sector, the manufacturing industry, the energy sector, IT based communication systems and services. What are the global and regional patterns and anticipated increases in water consumption in these sectors over the next 30 years?
- Metrics on global freshwater withdrawals for food production. Available data on the consumption of surface and groundwater water for food and agriculture in different regions. Assessment of existing projections of future water prices.
- Global and regional statistics on water quality. To what extent, - and how -, is water quality changing in rural and urban areas, both within and between countries? How does the geography and current trends in water quality affect the capacity of different genders and social groups to access clean and good quality water?

The report would critically discuss the accuracy and reliability of all the metrics and water accounting methods used in this report.

2. Governance of water and food security

Water governance is now a key concern in a context of increasing water scarcity, local and trans-boundary water conflicts, and global climate change. The HLPE report would therefore focus on the governance of water management for food and nutrition security. In this context, governance refers to the interactions among different institutions, actors and structures that determine how and by whom power is exercised, and where decisions are taken on water and food security. Rights, relationships, responsibility, and accountability are key issues here along with the set of rules, cultural or social norms that regulate access, use and control over water.

Actors, entitlements and rights. The HLPE report would briefly describe the various categories of actors who participate in the governance of water management for food and water security. These actors include water collectors (mostly women), small scale food producers (men and women farmers, pastoralists, fishing communities, forest dwellers, indigenous peoples, urban and peri-urban farmers...); public actors (local and national); and the private sector (small and medium size business to large multinational corporations). The report would distinguish these different actors on the basis of clear criteria, - including their specific capacities for water management; their entitlements and rights to manage water resources; their capacity to influence policy making and institutional choices at local/national/international levels; and ability/willingness to invest specific resources in the governance of water management for food security.

Special attention would be given to the contributions and roles of women as food and water providers. What do we know (and do not know) about gender relations and women's roles, rights, and responsibilities in the governance of water and food security?

Policies for water and food security. The HLPE report will seek to compile available information on how countries and regions are addressing the management of water for food and water security through their policies and institutions. The report will aim to identify common denominators and fundamental divergences in the policies and institutions for water governance that are promoted by different actors (the State, corporations and other private sector actors, indigenous peoples, non governmental organisations, peasant/farmer organisations, and social movements...). It would be useful to focus on national and international policies for this analysis of different practices and normative views on water governance and food/water security.

3. Management of water for food and nutrition security: impacts, sustainability and resilience

Water management. What are the key issues for the management of water for human health and nutrition, agriculture, and processing? How do changing diets affect water demand and water management options, and vice versa? Most national plans for agriculture and food security focus on expanding the area under irrigation by some significant amounts. What are the challenges for water management? What is the potential to accommodate demands for more irrigation? How far can water management stretch the resource?

How do management decisions to first allocate water for cities, industry, mining, and the energy production sector affect access and quality of water for human consumption and agriculture & food processing? How is water management challenged by the demands of urbanisation and population growth? What are the implications for the right to water and the right to food for all?

The HLPE report would compare and contrast the water use efficiency of different food systems and water management practices for the production, processing and consumption of food, - including drinking water using the concept of 'water footprints'¹ and other water accounting methods. The strengths and weaknesses of the different water accounting methods used for these comparisons would be critically discussed.

What is the effect of water availability on the international trade of food (crops and livestock products)? What are the risks and opportunities associated with the expansion of international trade in water intensive commodities? How are people's right to water and right to food affected by the changing relationships between (inter)national trade and water management? How do these trends impact on local and national food/water sovereignty? After critically assessing the strengths, weaknesses, and relevance of the 'virtual water'² concept, the HLPE report would describe the impacts of international trade on domestic water resources and on how water is managed and allocated within river basins, watersheds and villages/municipalities for drinking water, sanitation, farming, food processing and so on.

How could climate change affect water availability for human needs and agriculture in different regions? What are the likely impacts of climate change on groundwater use, water storage, and the availability of surface water for drinking/cooking water, sanitation, agricultural production, and food processing? The report would critically discuss the potential of technological and institutional innovations for water conservation and its sustainable use in the context of climate change, - focusing on water management for health, nutrition and water security and on agriculture and food security.

The report would also offer critical reflections on the resilience of the water management systems and practices currently used by different actors. How do the water management systems and

1 The "water footprint" of a food commodity (or any other product) is the total volume of water of freshwater used - that is consumed and polluted - to produce the food commodity, measured over the whole production chain. It is an indicator of freshwater use that looks at both the direct and indirect use of water to produce a particular food (or any other product).

2 The "virtual-water" content of a food product is the freshwater 'embodied' in the product. The virtual-water balance of a country or continent over a given time period is defined as the net import of virtual water over this period, which is equal to the gross import of virtual water minus the gross export. A positive virtual-water balance for the food and agriculture sector implies net inflow of virtual water to the nation from other nations. A negative balance means net outflow of virtual water.

practices of these different types of actors compare in terms of their resilience and capacity to adaptively respond to change, - including climate change and market volatility?

Water governance impacts & emerging issues. Available evidence and knowledge will be used to critically analyse the impacts of different governance regimes for water management on a) local and national water and food security, and b) on the livelihoods and food/water security of actors centrally involved in water harvesting and collecting, water distribution, sanitation, food production, processing and food preparation. When assessing the short and long term outcomes of different water governance regimes on food and water security and key actors, the HLPE proposes to consider both negative and positive i) environmental impacts; ii) social and cultural impacts; iii) public health impacts; and iv) economic impacts.

Last, the HLPE proposes to examine some critical emerging issues for the governance of water management. For example, the HLPE report would analyse the impacts of water grabs/acquisitions on food and nutritional security. Water is both a target and driver of the recent large scale land investments/land grabs for agricultural production (including biofuels). Particular attention would be given to the documented impacts of 'water grabs' on the food, nutritional and water security of women, vulnerable peoples and groups. The report would identify uncertainties, gaps in knowledge, and needs for further research on the long term consequences of water grabs/acquisitions for water and food security.

Equity and sustainability. The HLPE proposes to offer a critical assessment of the equity and sustainability outcomes of a range of water governance regimes and management practices, emphasizing implications for the food, nutritional, and water security of different genders and social groups. The report will seek to clearly identify gaps in knowledge and uncertainties in their discussion of controversies, contentious issues, and competing and conflicting approaches to water and food security, inclusive growth, and sustainable development.

4. Policy recommendations for water management and food security

As in previous reports, the HLPE will seek to elaborate policy recommendations, taking into account three important elements. First, the recognition of the need to take into account the diversity of converging and diverging perspectives, thereby trying to elicit controversies as well as competing visions and conflicting paradigms for water and food security. Second, the currently uncertain policy context that exists for water and food security. Third, the current context of increasingly rapid and unpredictable environmental, economic and social change.

The HLPE will ambition to take a long term perspective in its recommendations on how to improve policies and institutions for water and food security, as well as coordination at all levels among different sectors and actors.

Contributions received

1. Said Zarouali, Morocco

D'une part il est très important de valoriser le savoir faire des agriculteurs pour stocker de l'eau - khatarat, tfayat, ikagaren- ce sont des manieres d'avoir l'eau pour boire 'êtres vivants' et irriguer des cultures pendant les périodes sèches.

D'autre part, il est souhaitable d'encourager les culture à 2 ou à 3 étages notamment dans les zones arides.

Il faut definir les priorités dans l'utilisation de l'eau biensur, après l'eau potable, il y a koi ? L agriculture -alimentation- ou jardins -tourisme-

De toute façon: faire un diagnostic + proposé des scénarios.

BR.

2. Doug Merrey, United States of America

This is an extremely ambitious program. On the other hand, much of this work was done as part of the Comprehensive Assessment of Water Management in Agriculture (see D. Molden, ed. 2007). I think you can build on this, and also ask the question, what has changed since that study?

I would suggest you place special emphasis on innovation: what are the possible new ideas for acheiving global food and water security? This would include assessing ideas emerging from scientific research as well as from local on-the-ground experiments (whether managed by communities, individuals, NGOs, CBOs, or governments).

Finally, I think equity should be a major theme of the work and report. We pay lips service to gender, youth, marginalized groups etc in all documents but we do not think seriously and deeply about what we need to do to overcome these kinds of inequities. Such a focus --serious and critical -- could lead to new ideas that could be game-changes. If you do not do this, I fear this will be just another report discussed at various forums and then shelved.

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

In order to disseminate the problem to the public, there must be a new approach. The public simply doesn't understand what "water security" means and what does it mean to "run of of water"/"water shortages". Many people still don't understand it and don't find it relevant.

4. Bancy Mati, JKUAT, Kenya

Quite often, water used to grow food, especially under irrigated agriculture, is seen/depicted to be the villain (takes up too much proportion of national water demand, pollutes land and water resources, causes health concerns etc).

But where good records exist, this negative perception can be proved otherwise. Even without good records, estimates show that for instance, in Africa (where agriculture is said to take up 70% of all mobilized water), the problem is that so little water is mobilized! The reality is that even if all irrigable land in Africa were irrigated, it would use up only 12% of available water resources. It is possible that other sectors are actually denying agriculture the water it rightfully should get. There are many donors/funders who will Not fund a dam if it will be used for irrigation - pity!

Hence, we (of the Water-for-food nexus) need to change lots of perceptions, using solid data/evidence, especially in the light of new smart technologies that make irrigation/water-for-food so environmentally green, yet economically viable.

The demand for this happens to be where food insecurity is greatest, i.e. in poor countries which happen to suffer agricultural droughts, yet water infrastructure is very poor, if available at all.

The world eradicated smallpox. The world can make it happen that every seed planted shall mature and yield to its full potential. That is the meaning of Water-for-Food, according to me.

Bancy

5. Botir Dosov, CACAARI, Uzbekistan

Metrics and statistics. I think that recommendations to the Water and Food Security for its 42nd session in 2015 could use the metrics and statistics with more efficiency and effectiveness, if wider groups of researchers and practitioners would be involved in this initiative. Collecting data as part of data management can allow not only analysis of the current situation and answering how water use and management has impact on food security in those three dimension: (i) health and nutrition, (ii) agricultural production, and (iii) food processing, but also creating future scenarios considering current situation, trends and emerging risks. For example, in some countries using underground water for drinking and irrigation is increased rapidly. How it will influence to the salinization or soil erosion and environment? What will happen in ten years at such rapid use of water? Such issue would be linked with mapping of availability and quality of surface and underground, to draw future scenarios.

Mapping. I would like to see mapping of availability and quality of surface and underground water at least across the regions where scarcity of water is observed or forecasted, especially in dry areas and countries where high level of poor people exists. This mapping would be very expensive, but what can be valued more than investments in future with food security. In many countries, mapping of underground water availability and quality was done decades ago.

Direct and indirect impacts on food security. It is clear that study of the impact of water use on food security will be mostly concentrated on direct influential factors. But indirect or recycled impacts are also important. For example, we recognize that water has an important role in food security through its impact on health and nutrition, e.g. drinking water, cooking water, sanitary. But water also has impact on health and nutrition through other two dimensions, i.e. agricultural production, and food processing. Thus these three domains should be considered as a one system.

Correlated issues. Besides, water cannot be considered as isolated pillar of the ecosystem as a base of food security system. Soil management, socio-economic, institutional, policy and political and other issues should also be considered when we are taking about the water and food security.

Water is not a property and responsibility of a one community or state, but humanity. We may observe that water scarcity or mismanagement in some areas or region can trigger unexpected situations, where poor, smallholders and vulnerable groups of people can be affected seriously. The attention of global community is needed to those regions and areas to prevent and manage the risks of triggering such situations, when food security would be impossible.

In general, I would like to see more holistic and comprehensive approach in analysis, synthesis and forecasting how water has an influence on food security.

Best regards

6. Said Zarouali, Morocco

Suite des commentaires: il est important d'étudier la possibilité et la politique de transfert de l'eau d'un bassin versant à l'autre. la principale question qui se pose c'est pour quel objectif -irrigation ou eau potable - e l' autre coté y a t il consensus entre les deux parties -expiditrice et destinatrice-.

le plus important: peut on agir sur les habitudes alimentaires de la population pour courriger l'ecart entre l'offre et la demande en produit alimentaire?

Le point le plus important c'est de lier la securite alimentaire et l'utilisation des ressources naturelles notamment l'eau et la terre avec les couches ou les groupe de population vulnérables-pauvreté- en general dans les endroits caracterisés par des tauw de la pauvreté élevé' la dégradation des ressources naturelles plus importante et la disponibilité des produits alimentaires moins.

7. Thinlay Thinlay, NPPC, DoA, Ministry of Agriculture and Forestry, Bhutan

Water is life. There is no life without water. This should be the fundamental principle on which any discussion related to water has to be based. Bhutan has a water Act that spells out the importance of water, its conservation, use and management. The water Act of Bhutan says that drinking water should be the first priority followed by irrigation for food production and third for other uses in factories, industries etc. Water conservation, especially watershed protection, is given utmost importance. Deforestation or pollution in watershed must be prevented and regulated at all cost. Bhutan does not use ground water, but i guess countries dependent on groundwater must have policies to prevent groundwater pollution from agricultural inputs such as fertilisers, pesticides and othe farm wastes. In many urban areas another important source of water pollution is sewage and industrial wastes. Each countries must devise suitable policy instruments to prevent water pollution, protect watershed and other sources, distribute water fairly among regions or provinces. Many big dams built across several rivers in the world must also be use for water for farming and for recreation. Water harvesting technologies must be promoted in arid regions of the world. Water is as precious if not more than anything else. It has to be conserved, used judiciously and distributed fairly.

Cheers

8. Emad Mahgoub, Agricultural Research Corporation, Sudan

Water is a key to food security. Crops and livestock need water to grow. Agriculture requires large quantities of water for irrigation and of good quality for various production processes. While feeding the world and producing a diverse range of non-food crops such as cotton, rubber and industrial oils in an increasingly productive way, agriculture also confirmed its position as the biggest user of water on the globe. Irrigation now claims close to 70 percent of all freshwater appropriated for human use.

In 1948, the Universal Declaration of Human Rights affirmed the right of everyone to adequate food. However, access to adequate food in the rural areas of many developing countries depends heavily on access to natural resources, including water, that are necessary to produce food. The UN General Assembly declared access to clean drinking water and sanitation as a human right on 28 July 2010. But the right to water in the context of the right to food is a complex question. While drinking and cooking water would be protected, water for food production would probably not be covered under the minimum needs in arid areas.

Food security and the MDGs

Target 1.C of MDG 1 aims to 'halve, between 1990 and 2015, the proportion of people who suffer from hunger'. According to the MDG Report for 2011, the proportion of people in the developing world who went hungry in 2005-2007 remained stable at 16 per cent, despite significant reductions in extreme poverty. The MDGs are interlinked; progress in one goal supports progress in others. Supporting sustainable agriculture and rural development helps increase food production and reduces poverty and hunger. Food and nutritional security are the foundations of a decent life, a sound education and the achievement of the Millennium Development Goals.

What is food security?

The World Food Summit of 1996 defined food security as existing when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet dietary needs for a productive and healthy life.

Did you know?

- The world population is predicted to grow **from 6.9 billion in 2010 to 8.3 billion in 2030** and to **9.1 billion in 2050**. By 2030, food demand is predicted to increase by 50% (70% by 2050). The main challenge facing the agricultural sector is not so much growing 70% more food in 40 years, but **making 70% more food available on the plate**.
- **Roughly 30% of the food produced worldwide** – about 1.3 billion tons - **is lost or wasted every year**, which means that the water used to produce it is also wasted. Agricultural products move along extensive value chains and pass through many hands – farmers, transporters, store keepers, food processors, shopkeepers and consumers – as it travels from field to fork.

- Producing 1 kilo of rice, for example, requires about 3,500 litres of water, 1 kilo of beef some 15,000 liters, and a cup of coffee about 140 litres. **This dietary shift is the greatest to impact on water consumption over the past 30 years.**
- In 2008, the surge of food prices has driven 110 million people into poverty and added 44 million more to the undernourished. **925 million people** go hungry because they cannot afford to pay for it. In developing countries, rising food prices form a major threat to food security, particularly because people spend **50-80% of their income on food.**
- In developing countries, **43 percent of the farmers are women.** Female farmers are considered as efficient as men; however, they do not perform as well because they do not have access to the same inputs, services and productive resources – including water.
- The way that water is managed in agriculture has caused **wide-scale changes in ecosystems** and **undermined the provision of a wide range of ecosystem services.** The external cost of the damage to people and ecosystems, and clean-up processes, from the agricultural sector is significant. In the United States of America, for instance, the estimated cost is US\$9–20 billion per year.
- Agriculture contributes to climate change through its share of greenhouse gases emissions, which in turn affect the planet's water cycle, **adding another layer of uncertainties and risks to food production.** It is predicted that South Asia and Southern Africa will be the most vulnerable regions to climate change-related food shortages by 2030.

Sources:

- *Information brief on Water and Agriculture in the Green Economy. UNW-DPAC, 2011.*
- *The environmental food crisis: The environment's role in averting future food crises. UNEP, 2009.*
- *United Nations World Water Development Report 4. UNESCO, UN-Water, WWAP. March 2012.*
- *World Population Prospects: The 2008 Revision, Highlights. UNDESA. 2009.*
- *World Agriculture: Towards 2030/2050 – Interim Report – Prospects for Food, Nutrition, Agriculture and Major Commodity Groups. FAO. 2006.*

What can be done...?

In order to achieve a global food and nutritional security, commitments and investments are needed

- **to produce more nutritious food with less water:** Innovative technologies are required **to ensure a greener and more sustainable food production.** They are needed to improve crop yields; implement efficient irrigation strategies; reuse of drainage water and use of water resources of marginal quality; produce smarter ways to use fertilizer and water; improve crop protection; reduce post-harvest losses; and create more sustainable livestock and marine production.
- **to focus on human capacities and institutional framework:** Agricultural development in the least developing countries (LDCs) lies mainly in the hands of smallholders, a large majority of whom are women. Therefore, new institutional arrangements are needed that centralize the responsibility for water regulation, yet decentralize water management responsibility and increase user ownership and participation.
- **to improve the value chain:** From production, post-harvest handling, processing, retailing, consumption to distribution and trade, efficient water and food recycling strategies can be addressed. It can help secure environmental water requirements when reuse of treated water is not culturally acceptable for other uses.

Sources:

- *Facts Brief on Water and Food Security. FAO. 2008.*
- *Information brief on Water and Agriculture in the Green Economy. UNW-DPAC. 2011.*
- *United Nations World Water Development Report 4. UNESCO, UN-Water, WWAP. March 2012.*

9. Christopher Manyamba, Institute for Nutrition, Food and Nutrition (University of Pretoria), South Africa

The HLPE will assess the impacts of water management practices on food security, including water usage for agricultural production.

It will be very good if data will be collected in order to compute indices and assess the impact. I note that water measurements in agriculture is often difficult; for instance percent of agricultural land under irrigation in the FAOSTAT has scattered data from 2002-2010. The SADC target is to increase land under irrigation from 3.5% to 7% by 2015, which is related to CAADP pillar 1. Unfortunately, it is difficult to make policy conclusions because the countries depend on the FAOSTAT data on irrigation; which is also very scanty. HLPE should ensure that there are systematic ways of quantifying water used in agricultural production, otherwise it will be difficult to do the assessments.

10. Teresa McKee, United States of America

The calculation of net virtual water is critical to the study. You should define various methods of water transfers, including legal and illegal grabs. You should develop criteria for determining the sustainability of the water supply to provide a mechanism for approval of legal transfers. Legal codes should be enacted to penalize illegal grabs of water. The intent of the approval and penalty process should be to protect the future water supply depending on population forecasts.

Thank you, Teresa I McKee, APA,AICP retired

11. Satya Prakash Mehra, Rajputana Society of Natural History, India

Water is very important focus natural resource in upcoming time (better to state from present onwards). Keeping this fact in mind all the International & National Policies need to be made irrespective of the sectoral divisions. As like EIA or ESIA there should be assessment of impact on water resources while developing any project or executing any developmental planning mandatorily. Critical limit should be assigned for every project/ industrial unit/ process. The water reuse/ recycle should be made compulsory for every project or industrial sector. The projects should be stopped with immediate effect.

Besides, the WATER LAW is of the urgent need both at international and national level.....

12. Said Zarouali, HCP, Morocco

J'ai participé aux travaux des journées de terres et l'eau à Amman -fin 2013_ et des réunion sur la punirité de l'eau en afrique du nord, de ce fait je vous propose les Idées suivantes:

* la gestion de l'eau d'irrigation tout au long de sa trajectoire, depuis la source jusqu'à la parcelle, pour évaluer les pertes physiques en eau et identifier les noeuds et les points noirs où il faut intervenir.

* l'irrigation constitue une opération très déterminante dans le niveau des rendements des cultures irriguées. Mais, il se pose la question suivante: est-ce que toute culture doit elle être irriguée? et quelle quantité et quand? ici on traite la question des assolements et les priorités chez la population, face à la politique du pays d'économie d'eau d'irrigation.

* la gouvernance et la sensibilisation des usagers d'eau d'irrigation constituent tout les deux le vrai levier d'une vraie gestion rationnelle de l'eau. L'intégration des ONGs est déterminant. au Maroc, il y a les associations des usagers d'eau d'irrigation. c'est eux qui gèrent les circuits et contrôlent la durée ou le volume d'eau à la parcelle.

* et en la valeur de l'eau, qui devient un régulateur déterminant pour mieux utiliser cette ressource.

BC.

13. Taral Rana, India

Dear All,

As water is one of the natural elements viz. Earth, Fire, Water, Air, Space. So Water is a natural element which cannot be produced by human beings. It's God's gift. We have to manage this precious gift of God. So as per prevailing conditions of water availability in India and the world we have to take strong actions like harvesting of rain water, save water, save energy, save earth by use of vermicompost.

For saving of water and managing them in proper way, we have to save each drop of water from rain. We have to use water wisely and recycle the treated water effectively.

As an average we have wasted about 85% of water. For recycling the waste water and water use technology we have to think off.

For rural areas and urban areas we are wasting water drastically. For that we have to take actions for behaviour change. It is not simple but it is a very gradual process for changing of behaviour and mindset of public.

We have to go for public private models for managing water in a smart way. I think for food industry we have to develop new technology for treatment and use of water. Treated water can be used for recirculating as well as for reuse.

So many natural resources are not being maintained because they are of public. So we have to look out and take strong actions for managing resources.

For sanitation, behaviour change is the basic tool for any hardware work. Behaviour change is not so easy as hardware work. We have to change mindset of people. It's a big challenge for any government to tackle this issue. So we have to develop a model of PPP (Public Private Partnership).

Water measurement from any agriculture industry is difficult, so we have to educate and try to change the mind set of farmers to save water.

Thanks

SAVE WATER SAVE LIFE

14. AV Anantharaman, India

The scope defined by the Steering Committee lists :

4. Policy recommendations for water management and food security

As in previous reports, the HLPE will seek to elaborate policy recommendations, taking into account three important elements.

As a resident of Mumbai which is expected to have groundwater whether sweet or brackish at reasonably small depths - I see around me ever increasing obstructions created by the actions of the local body through its "Infrastructure development" projects & by builders of real estate who have no hesitation in filling up sea as well as mangrove lands for converting to concrete masses. Similar situation exists in other coastal towns as well as hinterland cities like Bangalore in India

1. While Infra development is a must, we have no right to close the earth from soaking from the abundant rains that batter Mumbai every monsoon. The water is now wasted into the Sea after causing severe floods to the city and suburbs. This can be prevented if alongside the Roads and Bridges, as the construction goes on, deep (6-9 m x 200mm dia) shafts reaching the subsoil are provided at say 10 m intervals and the rain water / storm water is funneled into the shafts. Needless to mention, the water passage has to be kept without any clogging and tampering while personal security is ensured to prevent accidental fall into the shafts. This can be easily implemented because for private buildings the town municipalities are insisting on Water harvesting. It becomes important the practice begins at home in the very projects of the local Authority.

2. The builders / real estate developers trying to use Mangrove / Sea shores must be reined in by a rule that these townships / colonies can be only on stilts with deep pilefoundations for supporting the beams that will form the base of the buildings. All roads leading to these buildings / towns must also be on Piledriven columns so that the earth remains exposed under and around the buildings. With rainwater harvesting simplified through guided stormwater drains to carry water into the soil, the rain water will return to the mother Earth. As there would be cost implications, the builders could be compensated through additional permission of Floor Space Index as notified by the Authority.

Benefits : Several million litres of water will go into the earth in Mumbai alone while the people will have flood free roads and green surroundings. Green surroundings will to a large extent help controlling the emissions escaping into the atmosphere.

Thus Policy making for development can help in Water security.

15. Florence Egal, Italy

This study is certainly most needed and timely.

In my view, it should articulate micro and macro dimensions of water management: so far there has been a bias – explicit and implicit - towards macro and commercially driven aspects. This must be rebalanced. But it should also give specific attention

- o to the most vulnerable (food insecure) who may depend on access to water for their survival and have limited say or visibility
- o to the most fragile eco-systems

You may therefore want to consider an initial section summarizing community level issues within representative territorial perspective?

An important dimension of access to water is that of opportunity cost for fetching water (and related gender and youth implications). Time and labour-saving interventions (including rainwater harvesting) can be essential for improved livelihoods.

I assume the section on Actors, entitlements and rights will bring out cultural dimensions: (I am thinking of water access problems linked to the cast system in Nepal).

The reference to water grabs is well appreciated. It is important that the study explicitly acknowledges the potential water grab effect of agriculture interventions: driving a borehole for horticulture (or for a guesthouse in an oasis) can have an impact on water access of people depending on the same groundwater table for their livelihoods (seasonally or not).

If we are aiming at sustainable development (and sustainable food systems), we need to adapt crops to the environment rather than the environment to crops, and screen irrigation efforts accordingly. Locally appropriate alternatives to increasingly standardized agriculture products should be systematically investigated. Retrieval of indigenous knowledge (including water management) and sustainable management of local biodiversity can contribute significantly to more effective water management.

The study may want to give more attention to the reuse of waste water, in particular in urban and peri-urban areas (I assume IWMI will be involved in this initiative?), and to the accountability of private sector (e.g. industry, mining companies) regarding contamination – I am thinking of the impact of effluents on homestead food production In the Andes, or on UPA in Nairobi. Water and food security are an important dimension of rural-urban linkages.

The study may also want to include DRM issues (e.g. prevention of floods), particularly in the context of climate change, as a key dimension of food security?

16. J. Savaran, consulting hydrogeologist, India

Dear member of Water Community

I went through the scope for HLPE and have a few suggestions particularly on point no. 4 i.e., on policy recommendations for water management and food security. Following are my inputs.

I would like to focus on groundwater resources. The initiatives taken so far to assess the groundwater resources are far from reality. In India, the Ministry of Water resources, Government of India has evolved a methodology (GEC1997) which is limited in scope and does not reflect the ground reality.

In addition there is no methodology available to assess the groundwater resources in an **Urban context**. Hence the areas I would like HLPE to cover are :

- a. To look at the present policies at the country level for groundwater resource estimation - this has to go beyond the national policies and look into specific policies and practices in place with their methodologies to assess the fresh groundwater sources
- b. To identify good cases
- c. Identify countries that have evolved policies and practices that are practical and reflect the ground realities in assessing urban groundwater resources.

Thanking you

With regards

J.Saravanan
Consulting Hydrogeologist
Chennai, India

17. Maha Elbana International Center for Agriculture Research in Dry Areas, Egypt

The topic is of great importance to human kind and its welfare. However, when talking about water and food security, I personally think that the following points should be taken into consideration while preparing the report:

- 1- Marginal water reuse, especially for irrigated agriculture and industrial sector, and its role for saving conventional water and fertilizers to fit other uses in addition to its benefit for the environmental health should be considered. Beside the California and WHO regulations that are governing this use, other regulations such as the Spanish RD 1620/2007 is considered one of the most effective and practical regulations that manage this water source. The International Centre for Agriculture Research projects i.e. CRP DS related to using marginal waters for Middle East and North Africa (MENA) region would be a reference to these data.
- 2- Applying geoinformatics and new technologies i.e. GIS and RS for agriculture management could provide accurate and precise data for water allocation, management, cultivated area, ET estimations....etc. ICARDA is developing several projects regarding this topic as well such as the "optimizing on-farm water and land productivities in irrigated agriculture in Egypt through geoinformatics" and the new "Water Benchmark and Water Livelihood Initiative (WBM/WLI)" projects.

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18. Ali Khalil, Ministry of Agriculture, Sudan

This very important study is expected to cover some important issues as follows:

1. treaties & agreements on water & their future impact on planning for food security
2. impact of sanitation system on water quality
3. possible threats to food security as a result of inappropriate policies

19. Murali Kochukrishan, IL&FS Environment, India

“Effective water management” let it be a Groundwater or Surface water resources is a much more a complex challenge in a democratic country like India. Here there are many a competing interests at the political, administrative, and also at basin levels with competing users for agriculture, Industries and Drinking water supplies. The water based and water oriented industries are thriving on a larger scale in many a states of India. Likewise, water intensive crops are cultivated in water starved regions of many a states in India, as it has been practiced from historical past. The futuristic predication says a huge gap between water supply and demand will exist up to more than 25% by year 2030. This will be most acute in water scarce states; unless a better water management practices are adhered to.

The upcoming process on water and food security is a vicious cycle, where in the food Security will be a question mark at the expense of many multinational water based companies exploiting the precious commodity. Hence, it may pose a 'wicked challenge' in the years to come.

The existing line Department in many a states of India is a complex mix of expertise in hydrology, Hydrogeology, engineering, constitutional, legal, political, social, inter-sector, institutional, and agriculture etc and each department work out as a separate entity with vested interests. There is no uniformity and common consensus approach as far as the safe up keep of the water resources are concerned.

In India, ownership and user rights, as well as responsibility for the management of water are largely a vested interest in the hands of the state governments and Union Territories. The role of the central government is limited to Trans-boundary issues between states or across national boundaries. Thus, basin wide water conflicts between states are more prevalent and the conflict continuous for years without any solution for the problem quoted.

The prime factors which may pose a setback towards water and food security in India are:

Vested Interest of Government.

- Increasing political Influence.
- Weak Institutional capacity.
- Non- coherence of strategies and approaches among various line department concerned.
- Decision making processes are very slow and ambiguous.
- Community are not taken in the decision making process.
- No concerned Department is willing to take up the responsibility, accountability, prompt implementation of projects and positive outcomes.
- The process of sustainable agriculture and water management is carried out without proper interface of Agriculture, CGWB, or other concerned department.
- The Draft National Water Policy has been published in June 2012 and the government has also announced its 12 five-year plan to redress past weaknesses. The draft water policy is contributing to active debate on the appropriate balance between centralized and decentralized approaches to water management and governance in India and the debate process still goes on without any outcome. The extent to which India will be able to provide decisive and common consensus direction between state and Central Government, developing nested multi-level solutions, and implementation of the same with a common goal/objective in an effective, efficient, rapid, and sustainable way through democratic process is a big question mark and carries a lot of turbidity in it.

The effective and efficient water and food security can be ensured provided:

Good Interdepartmental interaction and derivation of common consensus and well defined plan of action with all political support at micro to macro level.

- Community members are to be considered as one of the stakeholders and their ideas and thoughts are also to be valued.
- Better, more reliable and transparent information on the changing nature of hydrological condition needs to be available on a common platform without any restriction so that, the

decision makers and implementation agencies can have a sound back up support for more deriving a sustainable plan for water utilization.

- Awareness raising, information, and advocacy campaigns among people and decision makers at all levels to develop consensus on the seriousness of the water challenge. This is an essential ingredient in developing effective solutions that are to be effectively and efficiently implemented.
- Also, various primary and secondary data related to soil, agriculture, groundwater and surface water status, socio-economic profile of various regions, Environment set up, identified issues and problems of the regions, contact officials etc can be published in a public domain and the data are to be constantly updated for any implementing agency or decision makers to promptly rely on beyond doubt.

MURALI KOCHUKRISHNAN
SR. MANAGER, PROJECTS(HYDROGEOLOGY)
IL&FS ENVIRONMENT, MUMBAI.

20. Stella Joi, Active Remedy, UK

Thank you very much for the opportunity to contribute ideas and potential solutions to this incredibly important issue and discussion.

When considering a long term strategy concerning water and food security it is obvious that water is the dominant factor in the equation. When considering water security the entire water cycle and the environments it depends upon to function effectively need to be addressed.

"We recognize the key role that ecosystems play in maintaining water quantity and quality and support actions within the respective national boundaries to protect and sustainably manage these ecosystems." (The Future We Want RES/A/66/288 para.122)

"The Future We Want' of the Rio+20 Conference (2012). Resolution 62/196, which was adopted by the UN General Assembly in 2007, referred to 'the global importance of mountains as the source of most of the Earth's freshwater'".

(UNESCO 2013, 'Climate Change impacts on Mountain Regions of the World')

"Given their important role in water supply and regulation, the protection, sustainable management and restoration of mountain ecosystems will be essential."

(UNESCO 2013, 'Climate Change impacts on Mountain Regions of the World')

"Maintaining the integrity of ecosystems before they become compromised is an essential component of achieving water security and reducing the potential for conflicts. The continuous pace of human development is threatening the capacity of ecosystems to adapt, raising concerns that ecosystems will reach a tipping point after which they are no longer able to provide sustaining functions and services, and will become unable to recover their integrity and functions (Maas, 2012). Establishing sustainability boundaries will set the capacity of ecosystems before their limit is surpassed, acting as a preventative measure before crises and conflicts arise." (U.N Analytical Brief 22/3/13)

“Ensuring that ecosystems are protected and conserved is central to achieving water security – both for people and for nature. Ecosystems are vital to sustaining the quantity and quality of water available within a watershed, on which both nature and people rely. Maintaining the integrity of ecosystems is essential for supporting the diverse needs of humans, including domestic, agricultural, energy and industrial water use, and for the sustainability of ecosystems, including protecting the water-provisioning services they provide.” (U.N Analytical Brief 22/3/13)

Given this vast body of knowledge from numerous UN sources, it would seem that all the information for securing water is already complete. Now what is needed is the formulation of a global action plan to implement the protection and restoration of the environments essential for the renewal function of freshwater to secure an adequate amount of freshwater for present and future generations.

This will also enable the potential production of food for both present and future generations.

Thank you for your consideration
Regards
Stella Joy

21. Maria Antip, International Fertilizer Industry Association, France

Recognizing that meeting societal demand for food is a global challenge, as recent estimates indicate that the world will need 60% more cereal production between 2000 and 2050 (FAO, 2009), the fertilizer industry would like to draw attention to the synergy between water and nutrient management and the solutions it can provide for increased sustainable food production.

The objective of nutrient use is to increase the overall performance of cropping systems by providing economically optimum nourishment to the crop while minimizing nutrient losses from the field into the environment, including into water. Therefore, NUE and WUE are inextricably linked concepts.

Trials have shown that water use efficiency can be improved through nutrient management (Hatfield et al., 2001). Nutrient availability affects aboveground biomass, canopy cover to reduce soil evaporation, plant residue production, nutrient dynamics in soil, and thereby improves crop growth and WUE (Norton and Wachsmann, 2006).

Moreover, data from a lysimeter experiment conducted in Canada on spring wheat offers an excellent example of the relationship between NUE measures and WUE across a range of N levels. The study included both rainfed (dry) and irrigated treatments and shows the tremendous impact water status can have on yield response to N.

Even though NUE generally decreased as N rates increased, the simultaneous increase in WUE and yield until an optimum N rate was attained improved over-all system performance, showing that efficient and effective use of either water or crop nutrients requires that both be managed jointly at optimum levels within a specific crop system.

Numerous efficiency and productivity enhancing nutrient and water management technologies and practices exist, but many are underutilized. The International Fertilizer Industry Association stresses that locally defined guidelines for NUE that are specific for nutrients, soils, cropping systems and mindful of plant-water status are needed to help farmers identify where improvements are most needed and easiest to advance.

22. Giuseppe Noce, Italy

The issue is complex. Water is linked with food security and food safety and health and all is linked together. All contributes to inclusive and sustainable development. To answer to the HLPE ambitions I think that system dynamics could represent a tool to synthesize and analyze different fields, actors and to set the best strategy to assure water and food safety to people in every country.

23. David Groenfeldt, Water-Culture Institute, United States of America

One of the important contributions of the proposed study is the compilation of the various ways that countries are addressing water and food security (last paragraph of Section 2, Governance). Such a comparative study has the potential to be quite useful in helping countries choose among alternative paths to water and food security. To serve this purpose, however, the study needs to analyze the strengths and weaknesses of various approaches, against certain parameters. I would suggest that the parameters used should go beyond water efficiency or economic efficiency (though both are clearly important) to a broader vision of agriculture. The parameters I suggest (and which I have applied in my own work on water ethics) are the following: (1) environmental sustainability and impacts on water ecosystems and agricultural lands; (2) social benefits such as equity, employment, nutrition, institutional capacity-building, etc.; (3) cultural benefits such as identity, empowerment, and capacity for cultural self-determination; and (4) economic efficiencies, including water efficiency and managing ecosystem services.

By articulating these (or some other) parameters, the study will be able to offer assessments about the particular strengths and weaknesses of different approaches to food and water security, in terms of the particular parameters. I am attaching the agricultural chapter of my book, "Water Ethics: A Values Approach to Solving the Water Crisis" (Routledge 2013) to illustrate how these four parameters can be used in assessing alternative agricultural strategies.

<http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Ethics%20of%20Agricultural%20Water%20Use%20-%20Groenfeldt%202013.pdf>

The reason I feel we need to be very explicit about the parameters by which one agricultural strategy is considered better than another is that there is an unstated default parameter of monetized costs that is typically applied. In order to weigh additional factors of social, cultural, and environmental benefits, these need to be explicitly addressed, or they will inevitably be overlooked.

24. Cristina Grandi, IFOAM, Italy

Dear HLPE members,

Thanks for the opportunity of taking part to this discussion.

Comparing the water use efficiency of different food systems and water management practices for the production, processing and consumption of food, as proposed by the document at the block 3 "*Management of water for food and nutrition security: impacts, sustainability and resilience*" is crucial, because farming accounts for around 70% of water used in the world today and food systems are increasingly competing for limited water resources with the industrial sector and urban areas, affected also by climate change. It is also essential to consider the "*water footprint*" to analyze the impact of the different agriculture models on water quality because agriculture is also identified as responsible for significant pollution of water resources and environments.

For this reason this part of the report should be one of more important with a broad analyze including data and scientific evidences on the water efficiency and quality in the different agriculture systems. In conditions of increasing water scarcity it is a priority for institutions and governments to support choices that can lower crop water needs and doesn't pollute groundwater.

In this regard, I propose that the report take also into consideration organic and other agroecological farming models that are offering solutions for water quality and better efficiency in water use. As collaboration to the report I'm including below some scientific results on it.

Kind regards,

Cristina Grandi
IFOAM Food Security Campaigner

Organic farming demonstrates effective water conservation capabilities. Organic agriculture impacts positively on soil structure and enhances the water-holding capacity and hence availability of water. Increased humus content, for instance, allows the soil to absorb more water during periods of heavy rainfall, reducing the runoff of surface water and soil erosion (*Zeiger & Fohrer, 2009*). Greater holding capacity means that the soil can then supply plants with sufficient amounts of water in extreme droughts. Moreover, organically-managed crops have demonstrated their superior performance during such events, recording higher yields than their conventional counterparts (*Pimentel et al., 2005; Rodale Institute, 2011*).

These positive attributes have been well documented in successive long-term studies. Field trials in Switzerland, for example, found that organically-farmed soil is not only healthier and more resilient, but also has a greater ability to absorb water as compared to conventionally-farmed soil (*Mäder et al., 2002*). Results from the 30-year Farming Systems Trial at the Rodale Institute in USA observed similar benefits with organic cropping systems much better equipped to store and use water more efficiently, with higher yields in periods of drought (*Rodale Institute, 2011*). In water protection areas and near waterworks, organically-managed systems are clearly preferred and recommended for treatment and cost reduction reasons (*Wilbois, Szerencsits & Hermanowski, 2007; Haas, 2010*). There is also evidence to suggest that organic agriculture has the potential to use less water (*Wood et al., 2006*).

Moreover organic farming systems contribute to the preservation and restoration of water quality, protecting downstream users and water habitats that are rich in biodiversity. Since farmers often have very few incentives to undertake measures that prevent pesticides from escaping to water sources, environmental costs of pesticide pollution are still mainly transferred to society as a whole (*Pretty, 2008*). Organic standards prohibit the application of synthetic pesticides to protect water bodies. Although the use of manure and slurry still poses risks to water pollution, organic agriculture has not only significantly reduced its nitrate leaching rates (*Stolze et al., 2000*), but research shows that organic farming systems have the potential to continue to reduce leaching through sophisticated crop rotations, the use of green manures and the maintenance of catch and cover crops (*Heß et al., 1992; Heß & Mayer, 2003; Thorup-Kristensen, 2007*). Study done in India comparing organic and conventional cotton farmers demonstrated that conventional production has a Grey Water Food Print more than 5 times higher than organic cotton (Franke and Mathews 2013).

In summary, there are evidences that prove that organic food systems can increase water use efficiency through improved soil management and by reducing pollutants.

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25. Felix Marttin, Devin Bartley, Gerd Marmulla FAO, Italy

Contribution to the HLPE open e-consultation to track the analysis on Water and Food security, scope and building blocks

Felix Marttin, Devin Bartley, and Gerd Marmulla, Fisheries and Aquaculture Department, FAO of the UN

Scope

The description of the future analysis by the HLPE indicates that it will: “*focus its analysis on water for agricultural production and food processing, taking into account gender-related aspects. More specifically the HLPE could, from a food security perspective, assess the impacts of water management practices on food security, including water usage for agricultural production, food processing and other ways of consumption.*”

We would like to draw attention to the fact that inland fisheries are vital in the livelihoods and food security of often marginalized people, with often limited alternative sources for support. The subject of the proposed study (Water and Food Security) points therefore to the inclusion of this sector. The (mostly small scale) fishing communities are among the poorest and most afflicted with social ills, and may be further marginalized by a failure to recognize the role of inland fisheries in support of food security and livelihoods.

The importance of the inland fisheries sector to food security and livelihoods is often overlooked by Governments, policy makers, and other organizations, as, because of the marginalized nature of much of the sector, information on the sector is scarce. Production and its value are often underestimated. The WorldBank (2012) estimates that inland fisheries have a yearly catch of around 14 million tons, valuing around USD 9 billion, without any waste due to discards; however this estimate does not include subsistence fishers, who may harvest many millions of tons. In fact, several studies suggest that catches are probably largely underreported. For example, it has been reported that the officially reported catches from the Mekong basin need to be increased by a factor of about three to match reality (Van Zahlinge *et al.*, 2004, and Hortle (2007) in: Welcomme, 2011).

61 million people are employed in inland fisheries worldwide, of which 60 million in the developing world. 65% of the reported catch from inland fisheries is caught in low-income food-deficit countries. Over 200 million of Africa’s 1 billion people regularly consume fish and nearly half of this comes from inland fisheries (UNEP 2010). Whereas fish consumption is increasing in most of the world, in many parts of Africa per capita consumption of inland fish is decreasing due to over-fishing and habitat degradation.

Inland fisheries provides affordable high quality animal protein to local and domestic markets, and has a significant impact on food security. With this stated importance in mind we would like to request the HLPE to not overlook the inland fisheries sector in its analysis.

Building blocks

We note the building blocks of the analysis, and in general we believe that these building blocks give adequate opportunity to investigate Water and Food security, and to come up with policy recommendations in this regard. However, some of the building blocks’ descriptions have triggered us to make the following comments;

Water use for health nutrition and food security - global and regional trends

Water is “an essential input for agricultural production, food processing, preparation and cooking of food”.

We would like to propose a revision of the above sentence into: Water is “an essential input for agricultural production, capture fisheries, aquaculture, food processing, preparation and cooking of food”

If water is managed appropriately, inland fisheries can be productive, while that same water can be used as an input in agriculture production, food processing, etc. We would expect that there are other, non-excluding uses of water (allowing the same water to be used by other sectors after usage). Trade-offs between sectors may be necessary but win-win situations could be envisioned. This phenomenon of non-exclusive water use might be investigated in the study as well.

Management of water for food and nutrition security: impacts, sustainability and resilience

Water management

Fish has not been mentioned in this section, while the commodity is of utmost importance for people’s food security, as a source of affordable animal protein and trace elements. Water can and should be managed for multiple uses including supporting capture fisheries. We would like to request the inclusion of this sector in the study (including with respect to the mentioned water footprint).

There is no mention of participation of the previously identified actors in the policy/management plan development process. This might be an issue to consider. One of the results of the study might be that groups with weaker capacity might not be able to participate fully in the processes, and it would be interesting to see what kind of recommendations the HLPE would develop to address this issue.

Water governance impacts & emerging issues

We note that fisheries is not mentioned as an activity with respect to livelihoods and food/water security. We would like to repeat our call to the HLPE not to overlook the inland fisheries sector for the abovementioned arguments.

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26. Abdullahi Hassan, IEDP center, Somalia

The world is now suffering increasing water shortages that may cause the third world war if not made proper solutions. There number of countries in the world enjoying to wash the clothes and other daily appliance more than one barrel per day in the developed nation.

While in the less developed nation like my country Somalia more than 80% the population dwell in the far rural or they are nomadic only more than 20% inhabit the cities this small number of people are enjoying clean water not pure clean water. Most water mills are dug in the capital with close toilet.

The water we drink are dirt and contaminated that causes every tropical seasons in the capitals of the country cholera that is responsible the death of hundreds persons mostly children under five who could not resist the contaminated water with high salty and minerals in side

More than 50% of the Somali people who live in the regions and the far rural depend on drinking unsafe water from the rivers and the water catmints. There are no water purifying tools and solutions available in the areas.

The world should take action against the preventable problems that need proper reactions.

27. Valerie Issumo, Prana Sustainable Water, Switzerland

Greetings

Commodities traded on futures markets can be bought/sold before their production. We correlate the related trade finance with water footprints possibilities from treated wastewater in order to finance water & sanitation decentralised infrastructures and reduce water related risks (e.g. untreated wastewater reducing yields) & costs. Wastewater resources might come from disadvantaged population in order to give them access to sanitation and get revenues from the wastewater by-products such as renewable energy, treated wastewater for irrigation...etc....

Could the Global Development Goals & HPLE empower policies for reuse water priorities to reduce fresh water over-use and contaminations to protect food productions and while increasing access to sanitation and dignity?

Thank you

Valérie

www.pranasustainablewater.ch

28. Petra Wolter, FAO, Italy

Contribution from the Watershed Management and Mountains Team, Forestry Department, FAO HQ

Thank you for providing the opportunity to contribute to this very important discussion.

One aspect which is not adequately reflected in the study outline is the need to **protect** the world's freshwater resources for which it is proposed to include a separate chapter at the beginning, before dealing with water use, governance and management aspects. Protection of increasingly scarce

surface and ground water resources will be of vital importance if we are to cope with growing demands of a rising world population and new challenges stemming from climate change.

With a substantial increase in the demand for food and energy, mobilization of water resources for agriculture and food production will be critically important but there is a need to balance short-term productivity gains in agriculture with the long-term role that water flows provide for maintaining sustainable ecosystem services in landscapes and serving multiple benefits to human well-being. The quantity, timing and quality of water flows in landscapes must be sustained to meet the increasingly competing demands and to balance between a wide range of water uses and users.

Ecosystems such as mountains, forests and wetlands provide crucial water-related services, and the conservation and protection of these ecosystems is of global importance.

A high proportion of the fresh water required for domestic, agricultural, industrial and ecological purposes comes from forested areas in mountain areas. **Mountains**, covering 27% of the Earth's land area, provide on average 60-80% of the world's freshwater resources while this rate can rise up to 95 % in semi-arid and arid regions. In order to conserve and protect the increasingly scarce surface water resources, both in terms of quantity and quality, increased attention is required for the wise and integrated management of mountain areas.

Wetlands can store excess water during the wet season and release it slowly as water levels fall in the dry season. High altitude wetlands such as glacial lakes, marshes, wet grasslands and peat lands support unique ecosystems and services that sustain the livelihoods of people. They store large quantities of water from rain and glacial melt, feed aquifers, trap sediments and recycle nutrients, enhancing both the quantity and quality of water supplied throughout the year. In arid zones wetlands are vital sources of water in otherwise uninhabitable landscapes. As sources of water, food and fibre, they are critically important life-support systems for the survival of people. They help provide regular water supplies and fertile soils, improve water quality, recharge underground aquifers and lessen the impact of seasonal floods. Inland marshes and vernal pools store water in areas where there are no permanent rivers or streams.

Forests and forested watersheds are particularly important for the provision of freshwater resources. The role of trees and forests in the hydrological cycle by maintaining high water quality, influencing the amount of water available and regulating stream flow and groundwater recharge is more and more being recognized, ultimately contributing to food security and sustainable development.

More attention should be given to forest protection and forest management for the provision of clean water, and one way to achieve this is by increasing areas under forest cover specifically for the protection of soil and water. According to FRA 2010, only eight percent of the world's forests have soil and water conservation as their primary objective.

Watershed management can be a suitable approach to combine natural resources management, agricultural production and livelihoods improvement for the sustainable development of rural landscapes. Watershed management contributes to the regulation of surface water flows, the reduction of sediment load in river systems and the maintenance of water quality, all indispensable characteristics of surface water systems for successful and sustainable food production.

The International Year of Family Farming 2014 presents an opportunity to focus attention on the merits and challenges of family farming including in mountain areas. The study could therefore make

specific reference to the most vulnerable and food insecure small-scale producers who may depend on access to water for their survival and who could benefit tremendously from targeted investments in small-scale water harvesting and water storage as well as low-cost micro-irrigation systems. Fostering local level solutions including the safeguarding of indigenous knowledge and local agrobiodiversity may contribute significantly to a more rational water use and improved agricultural water productivity.

References:

FAO (2006) The new generation of watershed management programmes and projects. FAO Forestry Paper No. 150. Rome

FAO (2008) Forests and water. FAO Forestry Paper No. 155. Rome

FAO (2010) Global Forest Resources Assessment 2010. FAO Forestry Paper No. 163. Rome

Keys, P., Barron, J., and Lannerstad, M. (2012) Releasing the Pressure: Water Resource Efficiencies and Gains for Ecosystem Services. Nairobi: United Nations Environment Programme; Stockholm: Stockholm Environment Institute

www.wetlands.org

29. Jacob Burke, World Bank, United States of America

The scoping document could be clearer in distinguishing specific drivers of food security or insecurity. These may influence both rainfed and irrigated production of staples, but may have nothing to do with water per se. Tariff protection for domestic rice production (75% in Uganda at the moment) or rural energy subsidies (South Asia) come to mind, but the paper sometimes asks the questions the wrong way round (e.g "What is the effect of water availability on the international trade of food..").

So some more explicit consideration of the water variable in agricultural production would help (the total factor productivity argument) plus a measured view of how much room for manoeuvre remains through intensification and improving irrigation performance generally. Current trends have already been diagnosed in the 2007 Comprehensive Assessment and then much of the FAO supply-utilization account work is relevant in assessing the prospects for meeting global calorie demand. However real-world water and food security dramas tend to be politicized where access to water for productive uses is captured by a few and compounded by manipulation of food staple prices.

Beyond these general observations the paper could include a contemporary view of environmental pressures arising from agriculture - an issue that easily gets ignored. To this extent, more precision on the hydro- environmental limits of irrigated agriculture in relation to specific national or regional food security goals would be welcome. A draft FAO document produced by the Land and Water Division a few years ago is relevant here and is attached

30. Geoff Syme, Australia

I attach a recent analysis in terms of equity and property rights prepared by Professor V Ratna Reddy and myself as part of an ongoing research program and a forthcoming book. This may be of assistance.

http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/resources/Chapter%2010_1.docx

31. John Passioura CSIRO , Australia

Although dryland agriculture is mentioned early in the scoping paper, it is not mentioned again. Nevertheless, it is clear that rainfall is used very ineffectively in producing the main annual crops in many developing countries (e.g. see <http://www.yieldgap.org/>). Yet, in many regions food security depends greatly on dryland crops. For example, we are still feeling the effects of the food crisis in North Africa and the Middle East in 2007-8, when the price of wheat rose to unaffordable heights and created great social unrest. Further, reliance on dryland grain crops will surely increase as competition for irrigation water increases.

Continuing with the example of wheat in MENA, various estimates suggest that the yields are typically only about a third of what they could reasonably be in a given season. Thus, increasing these yields by 50%, to half of what they could reasonably be, would seem to be an achievable target, which, if met, would eliminate the need for imports and provide a cushion against volatility in international prices.

Because yield improvement on dryland farms has been very slow, it may seem fantasy to think that one could increase the yields by 50% even over a decade or two. However, there is a precedent of this happening. In Australia in 1985 wheat yields had not improved for thirty years, yet they almost doubled over the next fifteen. The main driving force for this change was that the farmers had been given a very simple way of estimating what their yields should be if limited only by water.

All they had to do was take the rainfall in a given season, subtract from it 100 millimetres to account for water lost by direct evaporation from the soil, and multiply what was left by 20 kg per hectare. Thus, to take an example, for a seasonal rainfall of 300 millimetres, the water limited yield of wheat would be 4 t per hectare $[(300-100)*20\text{kg}]$. Such estimates, though crude, strongly motivated the farmers. If they found that their yields were well below the water-limited estimate, they started looking for reasons why. With the help of agronomists they uncovered a variety of constraints to yield other than water, many of which could be overcome, so that the yields started to increase rapidly.

Although farming systems are typically specific to given localities and are therefore not easy to transfer elsewhere, what I have described above is a general process for improving water-limited crops locally which can be used anywhere. The main point is that the farmers are given a clear benchmark to compare their own yields with, a benchmark that applies to their own farm in a given season. It therefore comes with immediate relevance.

A requirement for this process to succeed is the availability of experienced agronomists. Expertise in this area has been rundown in international agricultural institutions over the past few decades. It is therefore of crucial importance to rebuild and entrain this expertise. Reducing yield gaps is by far the best and fastest way of improving the wellbeing of people in developing countries.

I believe that it is essential for the HLPE to emphasise the importance of dryland agriculture in their report for the CFS on Water and Food Security .

32. Sofia Monsalve, FIAN International

We thank the HLPE for providing the opportunity to comment on the scope of the upcoming water and food security study.

FIAN International is an organization working for the promotion and realization of the right to adequate food. We document cases of violations of the right to adequate food worldwide. Many important issues to address the structural causes of the violations of the rights to water and food that we have been able to detect are already included in the scope of the report. We commend the HLPE for this.

In our case data base though, we have identified the issue of water pollution and contamination due to toxic waste disposal in rivers and other water bodies as one major issue to be addressed. The right to food and water of communities whose livelihood depend on healthy rivers/water bodies be it for fishing or for irrigating their fields is severely impacted by these practices. Another example of water contamination and pollution is related to mining. The cyanide spillages which often happen in large-scale gold mining, for instance, heavily contaminate rivers and other water bodies destroying the access of local communities to drinking water, to inland fisheries and to irrigation water for their fields.

The issue of water contamination and its impacts on food security; and the importance of preserving healthy water bodies and water cycles for food security is not yet included in the scope of the study. We recommend HLPE to do so given the fact that it is an urgent issue on the ground.

We also recommend to HLPE to be aware that fishing and live-stock keeping are important livelihoods of many rural communities for which they also need water. Looking into water from a food security perspective needs to address not only crop production but also fishing and live-stock keeping.

33. International Planning Committee on Food Sovereignty (IPC) working group on Water

Contribution from the International Planning Committee on Food Sovereignty (IPC) working group on Water:

Thank you for the opportunity to participate in this initial process for the HLPE report on water and food security.

Governance, while an important concept and focal point for change, has questionable conceptual origins, and often associated with the international policies and programs of the World Bank. Thus is it important that a definition of what is meant by “governance” is given, a political assessment of what it means in different contexts, and how to conceptualize it within the framework of water distribution of water from the government/state. Water systems, like land and other natural resources must also favor community interests first and foremost.

It is also important that “governance” and water management for that matter not be restricted to a rural scope, but also include urban areas as access to suitable water for consumption and agriculture

is an issue faced by many urban communities and producers. In this light it would also be important to explore best practices/alternative methods for water use and governance in urban areas (as well as rural).

The document outlines that there are clear roles and responsibilities for different actors who participate in the governance and management of water, and the report intends to outline these utilizing a “clear criteria”. However, what will the framework or criteria for “rights and responsibilities” be based on? It is important that these rights and responsibilities are linked to international human rights norms, and civil society supported documents, which discuss the management of resources such as the VGGT, which provide guidance on how these roles should look and how rights of civil society should correspond with state obligations (including local authorities). This analysis should look at the relationship of different actors/forms of management to and component of food sovereignty.

This scoping document touches on many important issues, but privatization seems to be missing as a core issue despite the role that the private sector has played in organizing international water forums and expos, and the increasing rate at which international and national partners in many regions have explored water-related projects. Local administrations and central governments in many areas have failed to manage natural resources efficiently or sustainably, especially water, and many have turned away from traditional support and regulation of service delivery as they turn management over to private interests. This results in a lack of community control over resources, raised user fees and restricted access. It is important that this study critically examines the effects that privatization of water resources has had on a community’s food and nutrition security in both rural and urban areas. This affects not only access to water for agriculture (urban/peri-urban included), but also water for consumption and other components to the food system, such as food handling/sanitation, which are important factors to food and nutrition security.

The document also states that “available evidence and knowledge will be used to critically analyze the impacts of different governance regimes for water management”. However, for some regions/communities with problematic water policies/issues of access, the data and information available is very limited, unreliable or outdated. In these cases, what alternative means of data/information collection will be used?

Another important component to examine is the role of water in situations of occupation and conflict. Guidance on some of these issues can be found in previous CFS/CSM work on protracted crisis, however there are instances of water policy discrimination in some areas that could be explored. An obvious example here is the role that water has played in the Israeli occupation of Palestine and discriminatory policies that govern unequal water allocation in the occupied territories and Gaza.

In addition to what is stated in the document, the vision of building international and public policy around water and food sovereignty should also address the policies and processes around land policy, rural systems and their relationship with the urban context (and vice versa) and the direct impacts that pollution, privatization and appropriation have on the realization of the right to water (and food) within the context of food sovereignty. Spaces such as the World Water Forum, mentioned in the introduction to this paper should also be examined as to whether or not they are real spaces for civil society participation to discuss issues of concern such as relationships of water and food sovereignty, water and rural-urban relations, water and land tenure etc., rather than spaces that serve private interests.

34. Hannah Schellander, Defra, United Kingdom

Dear Vincent/HLPE Secretariat,

Thank you for the opportunity to comment on the scope of the HLPE's Water and Food Security report.

We have a couple of comments. It may be useful for the report to:

- assess the losses from and impacts of floods and droughts given immediate costs (loss of life, livelihoods) and long-term economic costs (re-building infrastructure, reduced GDP, impact on global food prices), and identify the most effective ways of improving resilience.
- investigate the impacts of shifting agricultural production (or certain aspects of it) from rain-fed to irrigated and the impacts of this on food production/productivity and wider environmental pressures (e.g. land degradation through salinisation and over extraction).

Thanks and regards,

Hannah

35. Federal Government of Germany

General Remarks

Germany highly welcomes the opportunity to comment on the HLPE Scope to set the track of the study "Water and Food Security". Management Water is a key area of good practices and policies to challenge food security worldwide. Coming from a human rights approach and taking into account obligations embedded within the human right to adequate food, Germany supports the development of joined strategies towards sustainable food systems and right to access to water.

The track of the study Water and Food Security outlines a holistic and ambitious set of issues to be analyzed, even though the paper is in an early stage of discussion. In our opinion, it covers the main aspects and information requirements with regard to water, health, nutrition and food security at water user, sectorial and policy level.

Water is essential for living. This basic observation reveals that the right to water in the context of health (sanitarian aspects) and nutrition should be the first topic.

The competition of different user (human, production, processing (both food), energy etc.) should first clearly be figured out and then status quo and projections in different aggregation levels as well as externalities by different users.

Water scarcity could be more developed. A distinction between different types of water (blue, green, grey) should be made, also in the context of scarcity of water. Environmental aspects in respect of (blue, green and grey) water use / water body in sensible areas are missing. The issue of balancing water availability (blue, green, grey) at local and regional level in the context of sustainability (long

term aspects) should be addressed; as well as balancing water in the context of trade (virtual water/water grabbing) and scarcity.

When discussing the management of water for food and nutrition security, also energy issues need to be taken into account, such as energy demand for irrigation of crops. In this regard, a link with Nexus approach on Energy could be developed. Moreover, irrigation for agricultural purposes is strongly connected with the issue of appropriate water storage, which should be considered in the report as well. Inadequate water storage leaves farmers vulnerable to droughts and floods, aggravated by climate change.

We suggest to also look at the role of Public-Private Partnerships.

Special Remarks

On page 2,

Food and Nutrition Security: “Water is also key for food security because [...]”

We propose reformulating this sentence to “In addition, water is key for food and nutrition security because”. The current statement might mislead the reader to think that the part before “also” covers nutrition security and the subsequent part food security – which wouldn’t be true.

Health effects: It could be also indicated that the health consequences of unhygienic drinking water affects nutrition security due to its effects on digestion. People suffering illnesses like diarrhea have reduced capabilities to absorb nutrients in the food they consume.

On page 3,

Children: Access to water for “different genders and social groups” is considered. It might be worthwhile also to take into account implications for small children, since they are particularly prone to unsafe water and sanitary conditions and may have a riskier health behavior.

Metrics: Seen the difficulty that may arise in finding the relevant information for all aspects to be answered, it is appreciated and important that the study will also critically reflect on “the accuracy and reliability of all the metrics and water accounting methods....”

Entitlements: The proposal would probably receive more concrete answers when entitlement-related questions are explicitly raised. Besides ‘water grabs’ indicated on p. 5, such issues include 1) conditions and regulations under which privatization of water supply might improve water access, and 2) how to design institutions in order to replicate successful self-governing irrigation systems (a topic investigated by Nobel-laureate E. Ostrom).

On page 4,

Wastewater usage: The proposed e-consultation as well as the following report on water and food security do cover important issues on freshwater use and its impact on food security, but lack the topic of waste-water reuse for agricultural production. The usage of wastewater for agriculture or aquaculture is not mentioned throughout the HLPE paper, but will probably play an important role when freshwater becomes more limited. Wastewater usage for irrigation might increase access to fresh (blue) water, but can negatively affect health of field workers and food consumers when not

handled properly. The indication of wastewater management and its diverging influences on nutrition security might point to a further interesting research area. Food production worldwide relies partly heavily upon waste-water irrigation in certain regions to sustain current and future needs for food production. The HLPes' report should include discussion and data on wastewater reuse. Furthermore, the section on Governance of water and food security should cover the issue of governments' roles in promoting the safe reuse of waste-water or the necessary institutional arrangements.

Water accounting: The investigation of water accounting method seems very promising. For example, the current indicator of "grey water footprint", which should measure the amount of water needed to assimilate pollutants in groundwater, only covers a fraction of pollutants (N-leaching) in most global studies.

Unit costs: When discussing the "...water use efficiency of different food systems and water management practices..." (p. 4, para 4) and the potential of "...technological and institutional innovations for water conservation..." (p. 4, para 6), it is suggested to include available unit cost information in comparing different options. Unit costs are a main driver for the applicability of efficient technologies.

36. Ecumenical Water Network of World Council of Churches, Switzerland

Comment to the HLPE-consultation on the scope of the CFS report on Water and Food Security

Even though the scope of the study is quite comprehensive, we found few gaps that the study needs to cover or strengthen. Therefore, here are some of the relevant, additional questions that we recommend to take into account:

1) Holistic Human Rights Approach

· We highly recommend a human right approach to be maintained throughout the study. Which means a thorough analysis of the haves and have not's with regards to the food and water. , who is benefited by certain policies, or hit by it. Given the fact that the access to safe drinking water and sanitation is recognized as a human right by the UN, it is all the more important to bring in the human rights dimension to the discussion.

2) Nexus between safe drinking water and nutrition

· Even a well-balanced diet with enough calories and good composition of nutrients, will not help, if you do not consume safe drinking water. The nutritious food will not be effective. This is why it's not enough to call for *improved drinking water* sources alone, as they are defined now by the current form of the MDGs (by taking into account the "connected" water supply, for instance, irrespective of the quality of water). Therefore, quality and quantity both are important,

3) Water intensive agricultural food production models

· Even though this aspect is being flagged, it needs more strengthening. The increase demand on food production is water intensive which that uses increasing amount of water for irrigation –

often detrimental to already lack of water availability. An effective water management , particularly with regards to agriculture through Agroecology models is the way to go.

4) The Pollution of Water and land : Urban –rural divide

- Water is being polluted by agricultural production (e.g., wide use of antibiotic in shrimp farming and rampant use of pesticides and fertilizer in agriculture) affecting water and soil rendering adverse effect on the fertility of the land and can affect future production. Management needs to take sewage treatment into account. Water / land rights need to include user obligations in contributing to safeguarding and preserving the quality of the water and land

- The Urban poor, who are forced to migrate from rural areas, in the name of urbanization, driven by market, the slum dwellers, “illegal settlers”, or the internally displaced people in the refugee camps live a life of impoverishment, far from the dignified access to safe drinking water and sanitation. The scope, therefore, should not only talk about the urban/peri-urban farmers, but also about the general urban poor who are deprived of these basic rights and entitlements that an average citizen of a country can enjoy.

5) Water in political conflicts and food production

- Conflicts arises if a neighboring country / state diverts the water for their needs or control the water sources, which affects the other. Therefore, in water management, one needs to take into account the transboundary water management, as more than 60% of the world’s fresh water falls within transboundary basins. This would hamper, both the agroindustry as well as access to drinking water and sanitation.

6) Virtual Water

- Even though this is covered in the scope of the study extensively, trade of water in the form of water intensive food commodities , it would be good to link it to the use of biomass for bio-energy and industry and the changing consumption habits. The chain of demand and supply for bio-mass has its own virtual water consumption and effect.

7) Management

- Even though many actors in water management has been spelt out in the scope of the stude, it is all the more important that the States must include in their governance plans, on water conservation and have measures in place monitor it.

- Privatization of water in the field of agriculture (promoted by World bank and others) is a major problem for the marginalized vulnerable groups. It is important to show who benefits and who loses from privatization of water

- Water is a common good. How would a just, democratic and equitable form of water governance look like? Where are best practices of people's control over and community use of water resources? The study should identify and highlight them for further emulation.

- Do we also need global governance of water, as it is not a local, national or regional problem only? How would this look like? Can a global body like the UN monitor violations of countries on water management?

8) Equity, inequalities in the context of stigma and discrimination

- Even though the scope of study talks about equity and sustainability, it is very important to address the various forms of stigma and discrimination on the basis of one's identity, ethnicity, health, cultural, regional, religious, caste background, etc. There are strong evidences of such discriminations, which proves a huge stumbling block in realizing human rights to water and sanitation. The Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque has discussed this in detail in one of her reports to the UN Human Rights Council [here](#). It is also therefore, important to address the existing inequalities in the form of stigma and discrimination within the purview of equity and not "one size fits all" approach.

9) Grievance

- Even though the UN Human Rights Council has a grievance redressal mechanism in place, is it accessible to the common people? What alternate grievance redressal system do we need? Where can a pastoralist or a peasant farmer go to when he/she wants to claim his/her right to water?

37. Helle Munk Ravnborg DIIS, Denmark

Contribution from Helle Munk Ravnborg, Senior Researcher, Danish Institute for International Studies (DIIS), based e.g. on research conducted as part of the programme Competing for Water: Understanding conflict and cooperation in local water governance (www.diis.dk/water).

Thanks for the opportunity to contribute.

I coincide with the observation made by others that this is a very comprehensive outline which may build on but also contribute to advance the state of our knowledge on water and food security. This is even more important now when prospects are that a separate water goal may be developed as part of the global agenda for sustainable development (the so-called post-2015 agenda).

Water quality

I am very happy to see that water quality is stressed as a separate issue. Many countries suffer from inadequate regulation of the production, trade and use of agricultural chemicals with devastating consequences for farm workers, water quality and food quality. Therefore, it is also alarming when UNEP as part of the Global Environment Outlook 5 (2012) observed that "there are no globally-agreed water quality standards, no rigorous water quality index based on long-term data, and data gaps exist for concentrations of contaminants of emerging importance". Problems of indiscriminate use of harmful pesticides may grow in areas where food crops are grown as biofuel feedstock due to even less strict regulation.

Food and water sovereignty as a policy concern

I am also happy to see that water and food security are dealt with in the context of water and food sovereignty which e.g. due to recent developments in the global food and water markets is becoming

an increasingly important political objective to many governments and also to a growing number of social movements around the world.

Water governance reform: legitimizing dispossession?

With respect to water governance, a wave of water governance reform has swept across the developing world during the past two to three decades, in an attempt to establish central administrative guidelines for and control over the assignment of water resources between sectors and users. Water use permits and concessions form a common part of these frameworks and are intended to be allocated on the basis of a politically agreed list of priorities in terms of water uses, commonly ranking domestic use first and food production second, as well as on the basis of hydrological, environmental and socio-economic impact assessments of proposed water use. Moreover, minor uses such as domestic water use and small-scale irrigation are often exempted from the need to obtain a formal water use permit (*de minimis* exemptions).

As water rights in most developing countries up to now have been obtained on the basis of complex and often contradicting systems of water rights defined on principles of first appropriation, riparian rights, customary rights obtained or justified through a mix of economic, social, cultural and political relations, the recent wave of water governance reform may at the same time be seen as an attempt reduce to authority of the institutions backing these sets of rights. The social, environmental, political and economic impacts of this wave of water governance reform will therefore critically depend upon the extent to which previous water rights holders, including holders of rights to water for *de minimis* exempted uses, and the concerns that have guided previous water rights authorities are taken into consideration as part of the new system for the assignment of water use permits and concessions. In countries with limited administrative capacity, a low level of legal literacy and with limited access to legal and administrative institutions for significant parts of the population, the net result of the water reform process may very well be the legitimization of the dispossession of water (and water rights) from small-scale, upstream food producers to large-scale, downstream agricultural enterprises who are required to demonstrate legal access to water e.g. in order to obtain access to international credit and markets.

Therefore, I urge that the report shed light on the issue and importance of the actual implementation on the ground (nationally as well as locally) of the recent water governance reforms, which in my experience is key to the actual outcome, including the outcome in terms of water and food security for who.

38. Abdelrahman Tamimi, West Bank

despite the fact the document is sufficient to clarify the road map two minor comments would be added

1. uncertain socioeconomic (internal conflicts , economic problems ...etc) and natural conditions impact (climate change , drought) should be considered
2. measurable quantitative indicatres matrix is needed
- 3, the impact of price (water - food, energy) affordability and acce

39. Government of Australia

Overall Comments

- Australia thanks the High Level Panel of Experts (HLPE) for the opportunity to provide comments on their proposed study on Water and Food Security.
- The proposed scope of the report indicates it will focus on water for agricultural production and food processing. It broadly covers the main issues currently raised in the global debate and is similar to several existing reports that address global challenges in water use for food production.
- Australia advocates a comprehensive approach to food security, which includes protecting the productive base for agricultural production. This consists of maintaining plant and animal health and sustaining the natural environment, including water.
- Australia therefore supports the proposed study on Water and Food Security, as it will provide valuable information on the condition of global and regional water supplies and any critical pressures likely to emerge as agricultural production increases to meet 2050 global food demand.
- In exploring the effect of water availability on the international trade of food, Australia encourages the HLPE to explore the link between open markets, innovation and effective water management.
 - Open markets allow a country to focus on their comparative advantage, which promotes greater efficiency and innovation in agricultural production – including in water management.
- Australia also supports the HLPE's proposed focus on women.
 - In addition to describing the contributions and roles of women as food and water providers, the report could usefully consider practical measures that would improve women's access to water.
 - We note that women make up 40 per cent of agriculture's labour force worldwide and up to 67 per cent in lower income countries. Economic growth is strongest when all members of a society are able to participate fully.
- Economic impacts (mentioned briefly in section 3) warrant greater attention. Water and food security are essential for economic growth and poverty reduction. We encourage the HLPE to identify the extent to which water scarcity might limit economic activity. Subsequent discussion of options for managing such constraints – including new technologies, improved resource management or other policy reforms – could then include consideration of their potential economic benefits.

Specific Comments

- Section 1, Dot Point 1 - *'What are the global and regional patterns and anticipated increases in water consumption in these sectors over the next 30 years?'*
 - This comment appears to be set in a context of increases in water consumption; however it is likely that we will be in a context of uncertainty of quantity and regularity in water supplies, especially in current food growing areas. It may be useful if the paper sets the discussion more in the context of increasing demands and uncertain supply of water.
- Section 1, Dot Point 3 - *'Global and regional statistics on water quality. To what extent, and how, is water quality changing in rural and urban areas, both within and between countries?'*

How does the geography and current trends in water quality affect the capacity of different genders and social groups to access clean and good quality water?

- Australia suggests the report explore the relationship between the increased use of groundwater and the localised concentration of ‘poisons/ contaminants’ in groundwater, which can have severe health impacts.
- Section 2, Opening Statement - *‘Water governance is now a key concern in a context of increasing water scarcity, local and trans-boundary water conflicts, and global climate change. The HLPE report would therefore focus on the governance of water management for food and nutrition security’*
 - It would be more realistic to set this in the context of competing demands for water from urban centres, industry, power generators and the needs of the environment. Water for food security (especially for irrigators) will have to be addressed in the context of competing demands.
 - As the competition for water increases, one of the emerging issues is water pricing. As water becomes a more valuable commodity and choices need to be made on the basis of comparative economic returns from various uses of water, the price of water becomes a critical issue. Entitlements are one issue but allocations are becoming more critical.
 - While there is a brief reference to transboundary conflicts in this section, the proposed scope focuses largely on national issues. We suggest the HLPE also provide their assessment of how water scarcity and competition might impact broader global or regional relationships in the future.
- Section 2, Paragraph 4 - *‘The HLPE report will seek to compile available information on how countries and regions are addressing the management of water for food and water security through their policies and institutions’*
 - A key issue that will increasingly affect policy decisions is energy and the cost of energy. There should be some reference to how energy (availability and price and also use of renewable energy such as for solar water pumps) will impact on water policies.
 - Formal policies and institutions are an important part of the picture, but some assessment will also be required of the political economy of water management. Access to water is a significant element of broader power relationships in many countries.
- Section 3, Paragraph 1 - *‘What is the potential to accommodate demands for more irrigation?’*
 - The issue of demand for more irrigation needs to address the issue of energy use, as well as the environmental impact of opening new areas for irrigation and the issue of water use efficiency in irrigation. Water use efficiency is a key issue for water security in South Asia. The challenge we face is the need to produce more food with less water.
 - In section 3 paragraph 2 there appears to be a suggestion that water for agriculture may come after water for cities, energy, mining, energy production etc. In South Asia, more than 70% of surface water and a similar percent of groundwater is allocated first for agriculture. This is what makes the issue of competition so significant.
 - Australia also notes that other users of water are demanding more, often basing their case on the share of Gross National Product generated from each use. We suggest the paper advise on measures needed to ensure the agriculture sector

continues to receive sufficient water to maintain food security, in the context of growing competition over an increasingly scarce resource.

- Section 3, paragraph 5 - *'The report would critically discuss the potential of technological and institutional innovations for water conservation and its sustainable use in the context of climate change'*
 - Australia suggests the issue of Conservation Agriculture be addressed in this section of the report. This approach targets more efficient use of water in agriculture.
- Section 3, paragraph 7 - *'Water governance impacts and emerging issues'*
 - The place of traditional water management structures (such as traditional tanks in South Asia) in securing food production in the face of changing rainfall patterns could be included in this section of the report.

Potential additional topics

- Surface water quality
 - The original Council for Food Security request for a report (page 2) includes consideration of impacts on groundwater quality. However, the state of surface water is also integral to global food security. For instance, in some countries, surface water has been heavily polluted and rendered unfit for many purposes including agriculture. While we note that the initial request terms cannot be changed, the interactions between surface and groundwater resources suggest that surface water should be included in the consideration of the report. We suggest that the scoping point on global and regional statistics of water quality (page 3, point 3) could specify that the research will consider statistics on both groundwater and surface water quality.
- Biodiversity and food security
 - We note that the document does not mention the critical role biodiversity plays in supporting agricultural production. Biodiversity is the foundation of ecosystem services essential to sustain agriculture and human well-being. While biodiversity is critical for agriculture, agriculture can also contribute to conservation and sustainable use of biodiversity. Maintenance of this biodiversity is essential for the sustainable production of food and other agricultural products and the benefits these provide to humanity, including food security, nutrition and livelihoods. We suggest that the interaction between biodiversity, water and food security policies could be explored in this report.

Suggested case studies

- Australian policy makers have a considerable experience in water and food security policy. The Department of the Environment has indicated that it would be willing to contribute to relevant case studies which may be useful for the HLPE to consider in developing its report.
- For example, Australia's ongoing inter-jurisdictional cooperation on water quality issues at a basin scale in the Murray-Darling Basin could serve as a realistic case study that demonstrates both the successes and inherent challenges related to water governance (For reference, see: Grafton and Horne, 2014 - forthcoming, Water markets in the Murray-Darling Basin, *Agricultural Water Management*, <http://dx.doi.org/10.1016/j.agwat.2013.12.001>). Similarly, Australia's experience with water quality improvement plans in general may offer valuable insight to this report.

- Another possible example is our experience in climate change adaptation and resilience. The Department of the Environment is developing a national adaptation assessment framework through a series of reports called the Climate Adaptation Outlook. We are working to extend the framework to assess national adaptation progress in a number of priority areas, including the water sector. The final assessment framework is due to be released in May 2014 and the first national assessment is due to be released in December 2014.

Concluding Remarks

- Australia thanks the High Level Panel of Experts for developing their proposed scope of the study on water and food security and looks forward for further engagement as the report is developed.

40. Timothé Feodoroff Transnational Institute (TNI) Agrarian Justice Programme , Netherlands

HLPE,

Thank you for providing us with the opportunity to feed into this timely and important discussion. Transnational Institute (TNI) Agrarian Justice Programme works with agrarian social movements and civil society groups on issues revolving around land and water struggles, carrying out evidence-based policy studies.

We welcome the comprehensive scope of the study, acknowledging the indivisibility of water with agricultural, land and food security issues – especially in light of widespread large-scale land acquisitions. We also appreciate how it encompasses a key and critical perspective on governance and management themes. We however noticed a few shortcomings, which, if taken into consideration, would strengthen the relevance and impact of the report.

An important dimension of water for food security left out of the scope relates to the role of water in sustaining (rural) livelihoods, especially those of small-scale food producers including farming, fishing, forest-dwelling and herding communities.

Further, we call for caution when you state that ‘the report would distinguish these different actors on the basis of clear criteria’. Boundaries between farmers, fishers, etc. are sometimes blurred. Some communities rely on farming or fishing depending on the season, or fishers occupy and use inland areas while farmers occupy and use coastal land, etc.

In the same vein, the pluralism of tenure systems over water access, use and management, including formal, customary and indigenous ones, should be recognised when it comes to issues in water governance. In this exercise, a human rights framework should be favoured when addressing the impacts of various water systems management.

We believe the policy recommendations could be more explicitly focused on guaranteeing the enjoyment of human rights such as the right to water and the right to food, especially for poor, vulnerable and marginalized people – to whom land and water access is critical for their livelihoods.

Finally, a section on concepts could be useful in order to clarify what is meant by water security, drawing upon the framework developed in relation to the right to food.

Best Regards,

Timothé Feodoroff

Transnational Institute (TNI), Agrarian Justice Programme, Amsterdam

41. Chris Perry

I wish you luck in evaluating the spectrum of responses you have received. Those from John Passioura are particularly insightful.

I note that you plan to use (and evaluate) water footprinting approaches in your analysis.

I attach two papers that are extremely critical of the procedures for computing WFs and the policy-relevance of such calculations, even if accurate.

Water footprints: Path to enlightenment, or false trail? (PDF)

<http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/files/Water/Water%20Footprints-Path%20to%20enlightenment%20or%20false%20trail.pdf>

An Economic Analysis of the Virtual Water Concept in relation to the Agri-food Sector (PDF)

<http://www.fao.org/fsnforum/cfs-hlpe/sites/cfs-hlpe/files/files/Water/Wichelns%20on%20VW.pdf>

Locally, it is certainly a good idea to know how water is being used, and hydrology is a well-proven science that facilitates that analysis. Especially when international trade is introduced, and NO attempt to evaluate the opportunity cost of all the other inputs into ag production, then we just have numbers with no relevance at all to decisions about water.

Regards

Chris Perry

42. Zenón Porfidio Gomel, Apaza Asociación Savia Andina Pukara, Peru

Estimados colegas.

El tema es altamente interesante.

La región Puno, donde vivo, tiene una extensión aproximada de 71 mil Km², el 70 % de esa extensión está constituida por el Altiplano (ecorregión suni del Altiplano) sobre 3850 m.s.n.m. El Altiplano es una región con alta variabilidad climática (por no decir cambio climático), en este momento (febrero 2014) las precipitaciones son erráticas, la helada hace dos semanas afectó un 40 % de los cultivos en varios sitios del región, aunque se sabe que el región la precipitación oscila entre 700 a 800 mm anuales la distribución es altamente errática. Según el resultado del censo agropecuario (CENAGRO 2012) existen en la región 617,163 cabezas de vacun. Si solo se estimara la cantidad de agua que

necesitan estos animales para producir carne o leche en una zona carente de agua, estamos ante un problema serio de falta de agua, en tanto el número de cabezas de vacunos aumentan en cada campaña, asimismo crecen las cantidades de áreas sembradas con pastos perennes y anuales para alimentar a la creciente ganadería lechera. En solo la provincia de Melgar (capital ganadera del Perú) en la última campaña se cultivaron al rededor de 30 mil Has, de los cuales el 70 % son de pastos cultivados entre perennes y anuales. Entonces estamos ante una situación que desde las políticas públicas no se está advirtiendo.

La recomendación sería desde la FAO, como ente rector de la agricultura en el mundo, se inste al estado peruano tomar en cuenta técnicamente la relación de la oferta de agua y la demanda de agua en un sistema productivo con la ganadería vacuna, especialmente en una zona de escasez de agua.

En cuanto al agua potable. Se están generando muchos proyectos de saneamiento básico en los distritos y en las comunidades rurales. El agua se capta en los ojos de agua o manantes naturales que están relacionadas con los colchones de agua o bofedales que se recargan naturalmente en época de lluvias. Los colchones de agua se están secando porque no tienen la suficiente recarga, es decir se extrae agua del ecosistema pero no se recarga. Urge aquí la recarga de los acuíferos naturales a través de la cosecha de agua. Sería bueno que la FAO tome cartas en el asunto para recomendar al estado peruano; es bueno los proyectos de cosecha de agua para irrigaciones en grandes magnitudes, pero se está dejando de lado la cosecha de agua a pequeña escala para las poblaciones alejadas de los grandes sistemas de riego y agua potable.

Muchas gracias.

Atte.

Zenón Gomel

43. Australian Centre for International Agricultural Research

- Water and Ecosystem Services: Ecosystems services provided by surface water such as fishing, gathering, grazing need to be better understood and documented. These services are critical to the poorest parts of society e.g. landless and water development often impacts these users hardest.
- Water Demand Management: we need to move beyond water management that focuses on water sharing between diverse claimants to active demand management. This provides a different lens on water management that is essential as water scarcity becomes more extreme and provides a basis for analysis for the most efficient and productive use of water.
- Frames for water 'equity, justice and resilience' need to be defined. These words are used in many water debates without anyone defining what they mean or considering what frameworks can actually be used in their implementation in water management. For instance what does equity mean in water management? There can never be physical equity in water distribution/use, so what is meant? Without appropriate depth of consideration and definition of water equity and justice, and how they can be delivered, there will never be agreement on water management and sustainable water management will not be achieved.
- Better approaches to integrating water use efficiency approaches between diverse agricultural sectors - irrigated, dryland, livestock and tree production - are essential if sustainable agricultural production and intensification are to be achieved.

- The issue of water markets/pricing and externalities (and policy responses) needs deeper treatment in the scope.
- Future competition (to 2050) for fresh water between agriculture, urban and industrial use needs to be projected in the report.
- Water quality and safety must be integral to the analysis and policy recommendations regarding water availability, access and management in the report; unsafe/unsuitable water undermines agricultural and health outcomes no matter how readily available water may be.
- The role of water in mitigating/managing/increasing rural household risks merits more consideration.

44. Kbn Rayana, I A M M A, India

A special report on the expert Feed back and comments:

BY KBN Rayana, Dir.Gen., IAMMA (HQ>Hyd/india), @ New York office 11510, USA

1. In the bullet point one to be added a safe drinking water exploration of Ground water restrictions and regulatory baody to be established to be included
2. Under Matrics the Agriculture sector use of water to be underlined with the crop requirement. This enables to save the water and also energy used specifically explored ground water , and irrigative systems. (ie., every crop needs certain required amount of gallons of crops. That to be added to enable to use it for good production and quality production of food.)
3. Hydraulic fractures are inevitable hence water to be explored however a regulatory body to be established which can be with objectives of recharging such ground water, establishing water tanks, catching/harvesting rain water , and silting existing tanks and protect them for illegal occupation and use of other purposes.
4. As a statistics use the water related to food and agriculture crop wise data and adanced agronomic systems applied for irrigating and crop development.
5. Under bullet point Two: governance water is a free element from the nature.. and so far so froth there is lesser regulatory body in use of Agriculture and drinking. Most drinking is under supplies from the local body ie municipalities, county agents etc. under these bodies an addition to be powered to regulate the ground water harvest, recharge, and exploration limitations etc.
6. As above said an agronomic systems developed with moisture regiems to establish better utilized , cost effective and economic use by the farmer., to be included
7. Capacity build up to catch up of rain water to enable to over flood , and waste of it into see to be regulated, by linking water channels,/rivers/riverbeds establishments, and watershed managements
8. Regulatory body to be more elaborated on the use of water by private as a trade and besides taxes the regulatory body may collect special provision of fee such use by private companies. This is specifically referring to the mineral water and etc...

9. In relation to the water management , the priority given for food and agriculture since food is prime for every one. ... and along with drinking water. One can stay without food for a couple of days and more some times with water. However without water it is hard to consume the food. Therefore as drinking water as a primordial thing however clubbed with regulatory body.
10. Water share of inbetween countries also an important which will be noted in the developing countries and also developed countries.
11. Water wastage to be addressed in turms of storage and diversion of water to dry lands use at national and international issue.
12. The sustainable use only possible by educating the water importance, limitations , availability and climate change from each person to advancing to the farmer who use both purposes ie drinking and food& agrc., and Industries who use for both purposes and control and recycling the waste water.
13. Importance will be given for use of wate water crop cropping systems wherever it is applicable.
14. Gender is always who use domestic water in both villages and cities. However they may be educated from time to time how to economic use and good use with monitoring. This also to be added in the report.
15. Water grabs and acquisition can only prevented through regulatory body, who is involved in local, hence to strengthen the body with powers are necessary.
16. An immediate management approaches to be evolved for silting out of all tanks to enable to stop over flooding and impact of natural disasters caused due to climate change. Although it is routine matter for developing countries, however in recent days it become a problem in the developed world too. For eg. Recent flood in Themes river in greater London area etc.

Conclusion:

Therefore task force to be considered on priority with regulatory bodies, in governance, sustainable use of water in agriculture etc for advancing agronomic systems in relation to the crop wise requirement, and drinking water based on per capita/local population.

At international level linking and hareing of river water .. and urgent silting out and management existing tanks....

45. Brad Franklin, International Water Management Institute (IWMI), India

As a developing country with the second largest population in the world, India faces many challenges related to using its water resources to help ensure the food security of its population in the coming decades. Deteriorating surface water infrastructure combined with the overexploitation of groundwater resources in the rice-wheat belt of the north and in peninsular India mean that Indian agriculture is potentially vulnerable to natural and climate change-related disruptions to water supplies.

While a number of researchers here at the International Water Management Institute (IWMI) have explored these problems from different angles and disciplines, there is still a great need for the development of interdisciplinary research tools that may help inform policy decisions on water use and food production in India. Because of the size of the Indian population, trends in irrigated farm productivity are important to international food markets and therefore are of relevance to policy-makers that deal with agriculture in the developed world. With this in mind, the USDA Economic Research Service is working with IWMI on developing a set of hydro-economic tools that would allow us to better understand the impact of water on India's agricultural production and international markets. Our research looks at the effects of water scarcity and variability on crop supply, demand, and trade in the coming decades. Accounting for the inter-dependence of surface and groundwater resources, we model projected land use and production levels that may occur under a "business-as-usual" approach to the existing water challenges as well as investigate the potential effects of policy changes. Due to the reliance of groundwater pumping on energy use, policies related to electricity pricing and availability are of particular interest. Whereas the lack of rural electrification is a constraint to increased irrigation in the water-abundant Eastern Ganges basin, highly subsidized or free electricity has contributed greatly to depleted aquifers elsewhere. For that reason, we consider the potential for energy policy to improve the sustainability of irrigated agriculture in different regions and how they might together affect national production levels.

46. Government of Argentina

CONSULTA EN LÍNEA SOBRE AGUA Y SEGURIDAD ALIMENTARIA

En relación con la consulta en línea sobre Agua y Seguridad Alimentaria, se remiten comentarios elaborados conjuntamente a partir de aportes de la Dirección de Asuntos Económicos Multilaterales, la Dirección de Asuntos Ambientales y la Dirección de la Mujer del Ministerio de Relaciones Exteriores y Culto y el Ministerio de Agricultura, Ganadería y Pesca de la República Argentina, sobre el enfoque y los contenidos propuestos para el mencionado informe:

1. "Water use for health, nutrition and food security global and regional trends"

En este punto, la Argentina quisiera resaltar la necesidad de analizar la incidencia de la industria, los servicios, y otras actividades económicas en el proceso de la utilización y consumo del agua. Si bien la agricultura es una de las fuentes de uso y consumo de agua, creemos importante no perder de vista el enfoque holístico que requiere el correcto análisis de la relación entre el agua y la seguridad alimentaria, para lo cual se torna necesario estudiar no solo la influencia del sector agrícola, sino también la propia a la industria y al sector servicios.

2. "Governance of water and food security"

Se considera pertinente la inclusión de comentarios sobre el nexo Agua y Seguridad Nacional e Internacional dada la cercanía de este tema con la gobernanza del agua y la seguridad alimentaria.

En este sentido se debe recordar que la Argentina sostiene la plena vigencia de la noción de "Manejo Integrado del Recurso Hídrico" y la necesidad de cooperación en los distintos aspectos relacionados con el recurso, tanto a nivel regional como internacional, como modo de alcanzar la sostenibilidad óptima en el manejo del mismo.

Asimismo, se debe destacar que el término seguridad aplicado a cuestiones ambientales no ha sido definido acabadamente y así, es sujeto de diferentes interpretaciones según qué temática califique o qué sujeto lo aplique.

En este sentido en los últimos tiempos ha tomado fuerza en diversos foros internacionales, una postura tendiente a vincular la temática hídrica en temas relacionados con el mantenimiento de la paz, la estabilidad política y la seguridad nacional e internacional. Como ejemplo se puede citar la pasada Cumbre Mundial del Agua (Budapest, 8-11 oct. 2013) en la que se resaltaron hipótesis de conflicto por el uso y aprovechamiento del agua en cuencas de Europa Central y del Este. Inclusive en el ámbito de UN-Water se han dado avances en este sentido, llegando a sugerir la inclusión del tema seguridad hídrica en el ámbito del Consejo de Seguridad de la ONU.

3. "Management of water for food and nutrition security: impacts, sustainability and resilience"

En relación a la gestión del agua para la seguridad alimentaria y nutricional se considera de suma importancia contemplar la equidad y sostenibilidad de los regímenes de gobernanza y prácticas de gestión del agua en los diferentes géneros y grupos sociales.

Por otro lado, según el enfoque propuesto el informe del GANESAN compararía y contrastaría la eficiencia en el uso del agua y las prácticas de gestión del agua para la producción, el procesamiento y el consumo de agua utilizando el concepto de huella del agua y de otros métodos de contabilidad del agua. Si bien se menciona que se evaluarían críticamente las ventajas y las desventajas de estos métodos, es necesario destacar que no existe actualmente una metodología aceptada internacionalmente para calcular la huella hídrica y que, por el contrario, existe una multiplicidad de iniciativas, por lo cual el informe del GANESAN no deberá realizar recomendaciones de política sobre la base de estas metodologías.

4. "Policy recommendations for water management and food security"

La Argentina entiende que una de las responsabilidades principales de los Estados es la de asegurar a sus habitantes el derecho al agua como una de las condiciones fundamentales para garantizar el derecho a la vida y asegurar un nivel de vida adecuado.

En tal sentido, en este punto se podrá tener en cuenta que -mediante Resolución 64/292 de la Asamblea General- en julio de 2010 las Naciones Unidas reconoció explícitamente el derecho humano al acceso al agua y saneamiento, por lo que entre las recomendaciones que se elaboren para los Estados deberá tenerse en cuenta que los Estados deben asegurar este derecho a los habitantes que vivan bajo su jurisdicción en consonancia con la Resolución 1803 (XVII) relativa a la soberanía permanente de los Estados sobre los recursos naturales.

Comentarios referidos al tema de igualdad de género

I) El desarrollo sustentable y el crecimiento inclusivos deben enmarcarse en principios de derechos humanos, justicia social, igualdad y equidad de género, no sólo por una cuestión moral, sino también por ciertos efectos que se ha comprobado resultan multiplicadores de procesos virtuosos y conllevan consecuencias intergeneracionales positivas.

II) La igualdad entre hombres y mujeres en el acceso a recursos productivos (agua y tierra), recursos financieros, protección social, y el incremento de la participación y liderazgo de las mujeres en los

procesos de toma de decisiones públicas y del mundo privado, se ha comprobado implican altas recompensas en el bienestar de sus hijos y familias, la reducción de la pobreza, el crecimiento económico, el cuidado del medioambiente y la gobernabilidad inclusiva, entre otras consecuencias.

III) En lo que a específicamente "Agua y Seguridad Alimentaria" se refiere, Argentina podría abogar por el establecimiento de leyes ambientales y acciones políticas referidas al cambio climático que promuevan y aseguren la participación de las mujeres en la toma de decisiones, manejo y gobernabilidad de los recursos naturales, y el aseguramiento de la prevención del cambio climático junto con políticas de adaptación y mitigación que consideren las necesidades específicas de niñas y mujeres.

IV) Argentina también podría promover la inversión en medidas, instrumentos y tecnologías que reduzcan el tiempo que mujeres y adolescentes dedican a tareas no pagas e insalubres como la recolección de agua y leña para sus hogares, o incluso las tareas del cuidado, lo cual incrementa su vulnerabilidad frente a situaciones de violencia, limita su productividad y disminuye las posibilidades de participación en el mundo laboral formal.-

47. Frédéric Apollin, Coordination SUD, France

High Level Panel Expert (HLPE)

e-consultation to set the track of the study on water and food security

Avis de Coordination Sud

Coordination des organisations françaises de solidarité internationale

Commission "Agriculture et Alimentation" - Sous-groupe Eau Agricole

26 février 2014

1. Rappel des travaux de Coordination Sud (groupe eau agricole)

Depuis trois ans, le groupe de travail "Eau Agricole" (AVSF, GRET, AGTER3) de la Commission Agriculture et Alimentation (C2A) de Coordination Sud, coordination des organisations françaises de solidarité internationale a œuvré pour construire et diffuser un argumentaire et plaidoyer en faveur de l'accès à l'eau des agricultures paysannes du Sud. Grâce à sa participation dans différents espaces – dont le Partenariat français pour l'Eau - en 2011 et 2012 (Forum Mondial de l'Eau Marseille 2012 et Contre-Forum, Semaine de l'Eau à Stockholm 2012, Forum Convergences, etc.), le thème "eau agricole et agricultures familiales" a été inscrit dans les agendas de ces évènements. Force est toutefois de constater qu'il l'a été par la petite porte et qu'il reste un thème d'intérêt encore peu pris en compte dans les débats, en dépit des enjeux affichés de relever le défi de la sécurité alimentaire, sans parler des défis environnementaux, climatiques, d'emploi en milieu rural ou de lutte contre la pauvreté. Le groupe de travail "Eau Agricole" a ainsi produit plusieurs documents :

3 AVSF (www.avsf.org), AGTER (www.agter.asso.fr), GRET (www.gret.org/) avec des contributions du CCFD-Terres Solidaires et du Secours Catholique.

- des formats courts : notes de la C2A "*Garantir l'accès à l'eau aux agricultures familiales*", note de positionnement, brochure "*N'asséchons pas le potentiel des agricultures familiales!*",
- un rapport long : "*Justice sociale de l'eau: garantir l'accès à l'eau aux agricultures familiales*" disponible en 3 langues (français, anglais et espagnol).
Disponibles sur : <http://www.coordinationsud.org/plaidoyer/agriculture-alimentation/acces-aux-ressources-naturelles/eau-agricole/>

A la demande de la FAO, et en vue de la tenue du FME 2012, le Groupe Eau Agricole C2A-Coordination Sud a également piloté le travail de consultation internationale, puis la rédaction d'un rapport de propositions et d'organisation d'une table-ronde finale lors du FME sur l'objectif-cible 229 : "*d'ici 2015, élaborer des lignes directrices concernant l'eau agricole au niveau international visant à appuyer la petite agriculture afin de mieux gérer l'eau pastorale et agricole, produire davantage de biens et services*". Ont été alors analysées 70 études de cas de 62 contributeurs au niveau mondial qui décrivaient 142 solutions pour améliorer la gestion de l'eau par les paysanneries pour la sécurité alimentaire : capital social (46), techniques (41), institutions (36) et investissements (19).

Les ONG du groupe Eau Agricole de la C2A ont également contribué au rapport produit par le Conseil Général de l'Alimentation, de l'Agriculture et des Espaces Ruraux (CGAAER France), dans le cadre du Partenariat français pour l'eau (PFE) : « *L'Eau et la sécurité alimentaire dans le contexte du changement global : défis et solutions. Contribution au débat international* » (CGAAER, février 2012) : http://agriculture.gouv.fr/IMG/pdf/Eau_et_securite_alimentaire_VA_31-07-2012_cle0e121e.pdf

Pour l'heure, l'ensemble des travaux de la Commission a notamment conduit à la conclusion qu'il **est urgent de garantir l'accès à l'eau aux agricultures familiales**. Elles détiennent en effet un potentiel immense pour répondre aux enjeux de sécurité alimentaire, d'équité sociale et de durabilité environnementale. Dans 70% des cas, les personnes en situation d'insécurité alimentaire dans le monde (plus de 840 millions) sont des agriculteurs et agricultrices. Mais les agricultures familiales fournissent déjà 70% de la production alimentaire mondiale et 80% de celle des pays en développement !

Coordination SUD recommandait donc de privilégier des appuis techniques, financiers et politiques qui soient adaptés aux contextes locaux, en suivant trois priorités:

1. **Investir intelligemment dans l'eau agricole pour les agricultures familiales** par la diffusion de techniques simples et souvent peu coûteuses, de collecte, de stockage et de distribution de l'eau pour la production agricole et d'élevage, et la promotion d'infrastructures adaptées dans le cas notamment de l'irrigation.

Accent mis sur l'importance d'accorder aussi, au delà de la seule agriculture irriguée qui concentre généralement l'attention, une plus grande importance à l'agriculture pluviale, la pêche, l'hydraulique pastorale, et à l'agroécologie, pour non seulement augmenter la productivité et la production, mais aussi les revenus et les capacités de ces familles paysannes de gérer des risques (climatiques, économiques, etc.) pour leur sécurité alimentaire ou celles des populations qu'elles approvisionnent (villes et campagnes).

2. **Protéger les droits d'accès et d'usage à l'eau pour produire des paysans et paysannes (incluant agriculteurs, éleveurs et pêcheurs)** face à la montée des appropriations à grande échelle de terres et des ressources en eau.

Accent mis sur la question du respect des droits historiques d'accès à l'eau agricole (incluant élevage et pêche) et à l'équité de répartition des droits d'eau pour l'intérêt de toute la société, en particulier en matière de sécurité alimentaire.

3. **Favoriser la gestion concertée et démocratique de l'eau** par la promotion d'instances de dialogue qui visent une répartition équitable de l'eau entre les usagers, les secteurs d'activité, les villes et les campagnes.

Accent mis sur l'investissement requis pour le renforcement des organisations d'usagers notamment de producteurs et productrices (capital social) et d'espaces de dialogues pluri-acteurs dans lesquels leur participation soit efficacement assurée.

Dans tous ces travaux et les espaces de présentation des résultats, la question de l'efficacité économique de l'usage de l'eau a souvent été posée, certains n'hésitant pas à mettre en doute l'usage qu'en font les agricultures paysannes par rapport à d'autres modes de production agricole. C'est pour répondre à ces interrogations que le groupe de travail organisera, en partenariat avec le COSTEA4 France, le 18 septembre 2014 un séminaire sur « l'efficacité et efficacité économique de l'usage de l'eau agricole par les agricultures familiales ». Cet événement permettra débattre d'analyses économiques – en partie déjà réalisées – sur l'impact de la sécurisation de l'eau pour les agricultures paysannes notamment en matière de sécurité alimentaire, de redistribution de la valeur ajoutée, de protection de la ressource. Celui-ci sera précédé de l'analyse de plusieurs études de cas déjà réalisés dans le domaine (Fao, CIRAD, IWMI, ONG de la C2A,...).

2. Les remarques et recommandations

Le Comité de la sécurité alimentaire mondiale (CSA), dans sa 40ème session, a donc demandé au HLPE une étude sur la problématique "eau et sécurité alimentaire" en lui demandant de centrer ses analyses sur :

- *"Les effets des pratiques de gestion de l'eau sur la sécurité alimentaire, y compris l'utilisation aux fins de la production agricole, de la transformation des aliments et d'autres modes de consommation*
- *la durabilité des systèmes de gestion de l'eau pour la sécurité alimentaire, incluant des systèmes d'irrigation, à la salinisation des terres agricoles et à la baisse de la qualité des nappes phréatiques.*
- *L'amélioration des politiques concernant l'eau et la sécurité alimentaire, ainsi que la coordination entre les différents domaines et acteurs à tous les niveaux et sur le long terme."*

Les entrées proposées dans les TDR sont pertinentes et recourent plusieurs des préoccupations exprimées lors des précédents travaux au niveau national en France et international :

1. Etat des lieux de l'utilisation de l'eau pour la santé, la nutrition et la sécurité alimentaire – tendances mondiales et régionales

4 Comité Scientifique et Technique Eau Agricole, plateforme multiacteurs publics-privés (dans laquelle AVSF, aGter et le GRE, membres de Coordination Sud sont actifs), et dont le but est de produire, partager, capitaliser et valoriser des analyses d'experts français et du sud sur des problématiques de l'irrigation au Sud. Plateforme soutenue par l'Agence française de développement

2. Etat des lieux des pratiques, instances et acteurs participants à la gouvernance de l'eau pour la sécurité alimentaire
3. Analyse des effets, de la pertinence et pérennité de ces modes de gestion de l'eau (techniques et institutionnelles) pour la sécurité alimentaire, incluant la question fondamentale de l'équité
4. Elaboration de recommandations finales de politiques pour la gestion de l'eau et la sécurité alimentaire

Toutefois, les remarques et recommandations suivantes peuvent être formulées :

2.1 L'étude devrait rappeler et documenter le fait que l'eau n'est pas seulement un intrant et un facteur de production : L'orientation proposée pour l'étude considère uniquement l'eau comme un facteur de production. Pour reprendre une expression couramment utilisée dans les sociétés rurales : *"L'eau c'est la vie, le sang de la terre"*.

Plus encore que les rapports de l'homme à la terre, les rapports de l'homme à l'eau sont encore des rapports des hommes entre eux autour de l'appropriation et de l'usage de cette ressource. C'est le seul bien commun qui présente notamment la caractéristique d'être un flux nécessairement partagé d'amont en aval. Au delà d'un intrant fondamental, elle est aussi un élément structurant de l'organisation de territoires ruraux et parfois urbains avec des organisations (irrigants, pasteurs, comités d'usagers, etc..) qui se sont historiquement et depuis des siècles organisées pour gérer, partager et protéger la ressource (et parfois aujourd'hui source de conflits locaux ou transnationaux). Des institutions de gouvernance de la ressource en eau sont souvent très anciennes, qui structurent également des modes d'organisations et de démocratie locale. Au delà d'enjeux techniques et économiques – fondamentaux par ailleurs - les enjeux sur le partage et l'usage futur de l'eau pour la sécurité alimentaire ne peuvent être déconnectés d'une vision historique, sociale et des questions de démocratie et d'équité, qui devraient être abordés et rappelés en amont de cette étude.

2.2. L'état des lieux sur l'utilisation de l'eau pour la sécurité alimentaire devrait être précisé et intégrer une analyse fine des causalités et conséquences :

- Préciser les tendances par zone géographique, en distinguant notamment des régions disposant de ressources en eau abondantes d'autres moins bien dotées, voire aujourd'hui sèches
- S'intéresser à l'évolution des consommations et droits/dotations y référant eu égard à différents usages, incluant le secteur agricole et alimentaire, en différenciant les dotations et consommations de l'agriculture familiale, versus d'autres modalités d'agriculture en développement (agro-industrie, plantations en monocultures – soja, palmier à huile, agrocarburants, etc...), de même que le secteur industriel manufacturier, dans ses différentes composantes, sans oublier le secteur minier en plein développement dans de nombreux pays.
- Préciser l'état actuel des processus d'investissements à grande échelle, d'accaparement des terres et des eaux et leur impact sur la sécurité alimentaire et nutritionnelle, en particulier sur les populations qui en sont des acteurs fondamentaux, mais souvent les plus vulnérables en particulier dans les rapports de force et de pouvoir : les producteurs et productrices familiaux.

- Au delà de l'état des lieux, s'attacher à détecter les causes éventuelles de dégradation de la qualité de l'eau par acteurs : cf. évolution des modes agricoles dans certaines régions du monde, du développement industriel et minier, etc... .
- Concernant la durabilité des systèmes de gestion de l'eau, l'étude ne devrait pas s'arrêter aux seuls éléments cités concernant la durabilité des systèmes irrigués, la dégradation des eaux souterraines ou la salinisation des sols, mais s'intéresser également à :
 - la surexploitation inquiétante de nombreuses ressources souterraines et aquifères (cf. Maroc), parfois liée au développement de systèmes agricoles intensifs en capital et peu durables.
 - la dégradation des terres pluviales (érosion, non conservation des eaux et des sols, etc..) alors que nombre de pays font face à un abandon de politiques et d'investissements sur l'agriculture pluviale dans ces zones sèches (cf. Sahel)
 - la perte de terres agricoles potentiellement irrigables ou à fort potentiel en pluvial avec des pratiques améliorées pour la gestion de l'eau, notamment par l'urbanisation agressive et l'étalement urbain.
- Attention finalement à ne pas oublier – ce qui souvent une tendance lorsqu'on parle d'eau et sécurité alimentaire - l'usage de l'eau pour la production alimentaire d'origine animale (par ex : accès à l'eau en zone pastorale, base économique dans plusieurs pays sahéliens ou de montagne), y compris la pêche.

2.3. L'étude devrait questionner les critères utilisés relatifs à l'efficacité dans la gestion et l'utilisation de l'eau à des fins de sécurité alimentaire :

- Attention en effet au choix d'indicateurs qui pourraient justifier de pratiques favorisant les intérêts de quelques secteurs au détriment d'autres. L'eau n'est pas seulement un "facteur" de production et donc une pure ressource technique et économique, mais bel et bien d'abord et avant tout un bien commun. Par ailleurs, les mal nommées "pertes en eau" n'en sont souvent pas, l'eau étant un bien pouvant être par exemple récupéré par des utilisateurs en aval, même lorsqu'il y a supposée "gaspillage".
- Les critères de mesure quantitative ou qualitative de l'efficacité dans l'utilisation de l'eau par différents usagers devraient donc être critiqués par l'étude et dans tous les cas, aller bien au delà de la simple "empreinte hydrique", mais prendre en compte des critères par ex. sur :
 - La protection et le renouvellement de la ressource
 - La création directe ou indirecte d'emplois
 - La création de valeur ajoutée et sa redistribution à différents acteurs de la société
 - L'augmentation des capacités d'adaptation et résilience des populations les plus impactées par le réchauffement climatique

2.4. L'étude devrait identifier de manière fine les facteurs limitant ou au contraire facilitant une gestion et gouvernance de la ressource en eau, participative, transparente et équitable

- L'étude proposée devrait certes décrire les différentes catégories d'acteurs qui participent aujourd'hui de la gouvernance de l'eau pour la sécurité alimentaire – de même que ceux qui en sont exclus –, et leurs capacités actuelles ou potentielles à y participer. Mais tous les acteurs mentionnés sont en capacité de jouer un rôle sur la gouvernance de l'eau et tous ont des droits.

L'étude devrait analyser de manière fine comment les systèmes politiques et les institutions donnent aujourd'hui leur place respective et légitime à ces différents acteurs pour qu'ils puissent exercer leurs compétences, faire valoir leurs droits et contribuer à l'élaboration de politiques et d'options institutionnelles, dans des relations justes et équitables.

Force est de constater que les plus "petits" d'entre-eux (producteurs/trices, communautés, populations autochtones, etc...), acteurs pourtant fondamentaux de la sécurité alimentaire et nutritionnelle, s'ils en ont les capacités et les droits – souvent historiques – ont été pour beaucoup jusqu'à présent exclus des décisions sur l'eau, voire spoliés de leurs droits.

- Dans ce domaine, s'il est tout à fait fondamental de s'intéresser aux rôles et contributions potentielles des femmes dans la fourniture d'eau et d'aliment – et au-delà de la simple fourniture, dans la gestion et gouvernance de la ressource en eau - , l'étude devrait élargir son "attention spéciale" à trois groupes cibles fondamentaux dans la fourniture d'eau et d'aliments et dont beaucoup souffre de situations de spoliation, d'accès difficile et de non participation à la gouvernance de l'eau :
 - les femmes,
 - les familles paysannes et communautés rurales,
 - les peuples autochtones
- Outre la catégorisation de ces acteurs, l'étude devrait donc clairement identifier les facteurs limitant ou pouvant favoriser une participation active et équilibrée dans la gouvernance de l'eau, intégrant l'impératif de la sécurité alimentaire et nutritionnelle. Une analyse historique de la "gouvernance" de l'eau dans différentes situations du monde serait par ailleurs pertinente pour éclairer les recommandations futures du HLPE. L'apport majeur des travaux de la C2A (rapport C2A, rapport FME-FAO- TSG229) est de découvrir parmi les solutions la prépondérance des solutions d'amélioration du capital social et d'innovations dans les instances /espaces et institutions de gouvernance locale, pour une gestion de l'eau efficiente au service de la sécurité alimentaire.
- Concernant l'analyse des politiques pour garantir la sécurité alimentaire et de la gestion durable des ressources en eau, l'étude devrait aborder non seulement via un recensement et une analyse des politiques et institutions existantes mais se poser la question de leur pertinence et efficacité pour une répartition juste et équitable de la ressource en eau au regard d'enjeux pluriels :
 - d'accès à l'eau potable
 - d'accès à l'eau pour la production alimentaire et la sécurité alimentaire et nutritionnelle, mais également :
 - de création d'emplois
 - de protection de la ressource et de l'environnement
- En ce sens, l'accès à l'eau des petits producteurs/productrices et le soutien aux agricultures familiales paysannes (60% de l'emploi dans les PMA) qui par ailleurs peuvent avoir aisément une gestion durable de la ressource en eau, devraient rester des priorités absolues.

2.5. En matière de gestion de l'eau, au delà de l'extension des zones irriguées, l'étude devrait identifier d'autres voies innovantes qui ont d'ores et déjà montré tout leur potentiel :

- identifier quelles autres voies jusqu'ici peu explorées et peu financées par les Etats et les bailleurs internationaux, seraient en mesure d'optimiser l'usage de l'eau agricole en particulier, sans investissement démesuré : voire notamment toute la petite hydraulique (citernes, aménagement de bas-fonds et petits réservoirs, micro-irrigation, puis pastoraux, etc...) et les gains d'économie et de valorisation de l'eau en agriculture pluviale (pratiques de CES et agroécologiques dont pratique de zaï, labour minimum, SCV, mulch, etc...)
- s'interroger sur les approches les mieux adaptées et les plus efficaces pour étendre aujourd'hui les zones irriguées, à partir de nombreuses expériences passées et d'ores et déjà capitalisées : gestion sociale de l'eau, renforcement des organisations d'irrigants, mise en place de centres de services aux usagers, etc.

2.6. L'étude devrait également recenser les innovations existantes en matière de gestion de l'eau qui est mise au défi par la nécessaire augmentation requise des capacités d'adaptation des populations rurales au changement climatique (réchauffement)

- Quelles implications sur les priorités politiques, financières et d'attribution de droits d'eau pour limiter des vulnérabilités fortes et renforcer la résilience des populations rurales et paysannes ?
- Les TDR soulignent que le rapport "devrait également jeter un regard critique sur le potentiel des innovations technologiques et institutionnelles pour la conservation de l'eau et son utilisation durable dans le contexte du changement climatique", don't il faut ici rappeler que certaines sont par ailleurs des "innovations" déjà existantes mais peu connues et peu valorisées, alors qu'elles ont déjà été historiquement développées (ex : pratiques d'agroécologie paysannes historiques, pratiques paysannes de collecte de l'eau, etc...)

Contact Groupe Eau Agricole C2A : Frédéric Apollin – AVSF – f.apollin@avsf.org

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

Dear HLPE,

We believe the upcoming Report on Water and Food Security should include an analysis of impacts and policy options regarding industrialized farm animal production, which is relevant to all four of the outlined categories.

Food security is often incorrectly used as a justification for the inhumane confinement of animals on industrial farm animal production facilities, while in reality, the industrialization of animal agriculture jeopardizes food security by degrading the environment, threatening human health, and diminishing income-earning opportunities in rural areas. Support from governments and international agencies for more humane and sustainable agricultural systems can ensure adequate food consumption and nutrition throughout the developing world.

Worldwide, industrial systems now account for approximately two-thirds of egg and poultry meat production and over half of pig meat production. Based on calculations by the Food and Agriculture Organization (FAO) of the United Nations, developing countries produced approximately half of the world's industrial pork and poultry.

These industrial facilities concentrate tens of thousands (or often even hundreds of thousands) of farmed animals along with their waste, frequently in welfare-depriving cages, crates, and pens. The growth in farm animal production is projected to increase strain on water resources, particularly due to the high water demands involved in growing animal feed. According to the FAO, "The livestock sector...is probably the largest sectoral source of water pollution, contributing to eutrophication, 'dead' zones in coastal areas, degradation of coral reefs, human health problems, emergence of antibiotic resistance and many others."

In addition to its role in land use and degradation, animal agriculture uses significant amounts of the water supply available to humans globally. Raising animals for food requires substantially greater quantities of water than raising plants for human consumption. For example, water levels in the Perote-Zalayeta aquifer in Mexico have reportedly declined precipitously since industrial pig production first took hold in the region in the mid-1990s. And rapidly increasing demands for meat and other animal products in Africa's urban centers has also been implicated in water and land scarcity, further jeopardizing food security in the region.

Not only are water supplies shrinking, the farm animal sector is increasingly polluting the available water. Industrialized farm animal production, in particular, is a key culprit in the degradation of water supplies. For example, intensive pig production in Southeast Asia has been implicated in the flow of surplus nutrients and minerals into the South China Sea.

Therefore, we believe the upcoming HLPE report should include an in-depth analysis of the water issues posed by industrial animal agriculture, as well as policy options to help mitigate these impacts. In order to ensure long-term food security, particularly for vulnerable groups in the developing world, development finance and policies must favor small farmers who give proper care to their animals, act in accordance with the basic ethic of compassion towards animals under their control, and practice and promote more humane and environmentally sustainable agriculture.

Sincerely,
Geoff Orme-Evans
Humane Society International

49. FIAN International

FIAN International thanks the HLPE for the opportunity to provide input during the e-consultation on the scope of the upcoming Water and Food Security report to be prepared for the 42nd session of the CFS. In addition to the input already provided by our Access to Natural Resources-Programme Coordinator, Sofia Monsalve, we hope you will consider the following issues and recommendations during the preparation of your report.

While we welcome the explicit goal of taking into account gender-related aspects in the report, we would like to highlight a couple of gender-related issues that seem to be missing from the current scope. Specific emphasis should be placed on the link between drinking water quality, sanitation and

infant and young child nutrition and health. While breastfeeding protects infants by decreasing their exposure to contaminated water and poor sanitation, infants and children under 5 who are not breastfed for one reason or another (and thus whose nutrition is dependent upon foods prepared under unhygienic conditions) are at an increased risk of developing diarrhoeal diseases and associated malnutrition. Furthermore, adequate access to water and sanitation should be presented in the wider context of women's rights and gender equality and linked to food security for all. For example, gender norms in many cultures dictate women and girls are the main "fetchers" of water for their families; as a result, adequate access to water would significantly reduce water-related "time poverty" for women and girls, which would have an impact on their ability to use this time for other more productive activities, such as attending school, with considerable impact on women's and their families' rights and food security.

In addition, while the scope proposed recognizes the importance of water for both food and nutrition security, we would like to stress that the two - food and nutrition - need to be looked at in an integrated fashion and not divided artificially. When analyzing, for example, the impact of water pollution on agricultural production, this should be done not only from a food security but also from a nutrition perspective. The nutritional adequacy of food is an essential element of the right to adequate food; hence the nutrition dimension needs to be considered at every stage of food production (incl. processing), distribution and consumption. While safe drinking water and sanitation are equally important for good nutrition, this should not lead to nutrition being detached from food.

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50. Institute for Agriculture and Trade Policy (IATP), USA

Comments Submitted by the Institute for Agriculture and Trade Policy (IATP) on the Scope of the Study on Water and Food Security

Thank you for this opportunity to comment on the HLPE Scope to set the track of the study "Water and Food Security." The CFS-HLPE is undertaking this study at a critical time, characterized by water related uncertainties—droughts, floods, and unpredictable monsoons—all contributing to food and nutrition insecurities in vulnerable communities.

We hope that the study builds on the work that the HLPE has already done on land tenure and international investments, social protection for food security, biofuels and food security, investing in smallholder agriculture for food security, as well the CFS's [approved Voluntary Guidelines on Responsible Tenure](#). [The Voluntary Guidelines on the Right to Food](#) as well as the [IAASTD \(recommendations\)](#) are existing and critical tools that can help provide the basis for the report on water and food security.

Structural reasons for water insecurity and the need to explore improving water flows

Given increasing investments in land and water as primarily an asset, and the financialization of water-related services, the scope of the study will have to go beyond the immediate issues of water scarcity. It must identify the structural causes for water insecurity, and must also examine proposed solutions in terms of their inadvertent links to these structural causes. We suggest beginning the study by looking at fundamental reasons for changes in water cycles; assessing how to improve the water flows in landscapes (the quantity, timing and quality of the water flows); and looking at the extent to which preventing loss of wetlands, mountains, and forests three ecosystems that regulate earth's water cycles can help improve water availability. There is an urgent need for such a wider view that incorporates the possibility that certain extractive uses or conversion of resources may be "uneconomic" in terms of destroying more (natural or social) value than they create, especially in terms of downstream and knock-on effects on water and water users ([Bond, 2012](#); [Daly, 2009](#); [The World Bank, 2011](#)).

Framework

The right to water in the context of health (sanitation aspects) and nutrition of people, and the right to water for ecosystem sustenance in its own right (following the South African constitution) must be central tenets of the study. Moreover, the right to water is essential also for the realization of the right to food. Given the focus in the CFS on the food and nutrition security of smallholders and workers who feed the majority of world's population, it is important to recognize the centrality of access to water for them. The CFS report on "[Investing in smallholder Agriculture for Food Security](#)" also recognizes that "the right to food differs from food security in providing entitlements to individuals-and placing legal obligations on States-to access adequate food and the resources that are necessary for the sustainable enjoyment of food security." In keeping with this emphasis placed by the CFS on rights based approach, and the nominal obligations placed on the 70 signatories and 161 countries party to the 1966 International Covenant on Economic, Social and Cultural Rights, the normative framework of the study must be based on progressive realization of the right to water and the right to food rather than simply ensuring water security and food security.

1. Water use for health, nutrition and food security-global and regional trends

The global and regional trends in water use are affected not only by the extensive agricultural water use but also by water impacts of nuclear power generation, extractive industries and other water intensive industries. However the current water footprint estimates available are mostly concerned with tracking the [consumptive water use](#), and focus mostly on agricultural production. Thus the study must note that in most value-chains and company operations the reuse of return flows

is not a common practice. Moreover, the study must examine how industrial operations, including mining and thermal energy production, impact water ecosystems ([water quality](#), water temperature, water availability) and alter freshwater ecology, and thus fundamentally affect food and water security of marginalized communities around the world.

Such an approach can then help the study guide the current discussions on water-food- energy nexus at the United Nations, as it develops post 2015 Sustainable Development Goals (SDGs) and corresponding targets. In doing this, the study might also want to question the equal footing

accorded to water, food and energy security in these discussions, given the unique role water plays in maintaining life.

2. Governance reform

In developing its recommendations, the study must continue with the emphasis placed by some of the CFS documents on (a) "the primary responsibility of governments and the central role of country ownership of programmes to combat food insecurity" (GFS), with the obligation of adhering to "existing human rights standards and the progressive realization of the right to adequate food in the context of national food security" (ToR to develop principles for responsible agricultural Investments), and (b) the "due priority to enabling, supporting and complementing smallholders' own investment" (GFS). The study should also be guided by the [Voluntary Guidelines on the Right to Food](#) (guideline 8.1, regarding access to resources), which assert: "States should facilitate sustainable, non-discriminatory and secure access and utilization of resources consistent with their national law and with international law and protect the assets that are important for people's livelihoods. States should respect and protect the rights of individuals with respect to resources such as land, water, forests, fisheries and livestock without any discrimination."

Economic productivity of water: Governance reforms that are sweeping across many countries tend to focus on economic efficiency as the measure of water productivity. Confining analysis to economic productivity risks pitting wealthier users or higher "value-added" uses against those with lower economic power but in greater need of water. Although the benefits to, for example, public health in some cases may make their own economic argument for value, the primary scope should focus on providing those most in need with livable and dignified access first, and strict economic considerations second, side-stepping the problem of effective demand (e.g., [Khan, 1985](#)). The study should thus examine alternative proposals to improving the governance of water. It should provide a normative framework in order that these reforms prioritize the needs of small-scale producers and workers, and that water productivity not be measured simply in terms of economic benefits. Rather, the role of water should be understood in terms of multiple benefits to society, including socio-ecological and cultural, many of which are least understood and thus immeasurable.

Water, food security and trade: The scope of the study refers to the potential of virtual water transfer or trading (as an alternative to producing food within national boundaries) as a means for food security. This is not new-many countries that lack arable land or access to water, but with access to financial resources, have been meeting their food security needs through imports. Not only the country's access to foreign reserves, but also its agricultural investment and trade policies play a key role in this. However such trading occur in the context of international trade agreements. Thus proposals such as virtual water trading needs to be assessed in terms of the impacts of trade agreements (and partnership) and investment on progressive realization of the right to water as well as the right to food for the small scale food producers and workers in the context of national food security. Given that the focus of CFS is to strengthen the food security of small scale producers and workers, it is crucial that the study build on the CFS report on "[Investing in smallholder Agriculture for Food Security](#)," and pay attention to the civil society inputs on responsible agricultural investments.

3. Water management

The proposed scope of the study ("What are the key issues for the management of water for human health and nutrition, agriculture, and processing? How do changing diets affect water demand and water management options, and vice versa?") opens a huge area for us to look at. The HLPE has

already addressed some of these aspects through its [study on Biofuels and Food Security](#) on which the current study can build.

Water use in industrial meat production: In addition, this study must look into a critical area of concern: industrial meat production. Assessing this extremely water intensive food production model involves looking at its extensive agricultural water use in growing feed -crops and animals, its impact on water quality both from point and non- point sources, as well as its impact on global water cycles and thus on food security. As is well known now, the water footprint of industrial meat production is extremely high ([Olsen-Sawyer, Kai 2011](#)). Moreover, surface and groundwater contamination due to excessive manure application is leading to major [environmental and public health concerns in industrialized countries](#).⁵ These concerns about water quality are now becoming a major cause for concern in developing countries as well.⁶ For example, the shift towards an industrial resource intensive model of meat production in countries such as China has an enormous impact on water resources not only where meat is consumed, or processed, or where animals are raised, but also where feed is grown. For example, increasing demands for feed grains result in agricultural expansion into rainforests and other mountainous landscapes, contributing to land-use changes, further altering already disturbed water flows. Often times, such expansion of feed production into so-called "marginal" lands displaces indigenous and marginalized populations. Thus the global water resource impacts of the industrial meat value chain (including the industry's thirst for cheap feed) and its human rights impacts should also be examined. The study must therefore include a proposal to assess all the water- related implications of the industrial meat sector and its impacts on food security and recommend an alternative way forward.

Water use in agroecological approaches: The scope of the study must be expanded to include an assessment of water implications of agroecological approaches, and of the co- ecological benefits of such practices. Agroecological approaches contribute to progressive realization of the right to water and the right to food of the small-scale food producers and workers engaging in such production practices; they also provide other socio-economic benefits arising out of increased access to natural resources ([Chappell et al 2013](#)). Further, the advantages to prioritizing local and small-scale institutions,

⁵ 1 See also: Pew Commission on Industrial Farm Animal Production (2008). [Putting Meat on the Table: Industrial Farm Animal Production in America](#), pg. 21..Baltimore, Maryland: Johns Hopkins Bloomberg School of Public Health.

⁶ z Industrial animal farms are becoming a key source of water pollution in China, for instance. See IATP studies, [Global Meat Complex: The China Series](#) where possible, are well established ([Ostrom, 1990](#)) and access to water has been correlated to significant reductions in infant malnutrition ([Smith and Haddad. 2000](#)). Co-ecological benefits include improved soil water retention, increased carbon content of the soil, improved soil nutrient content, improved soil biotic activity, and reduced soil erosion ([Kremen and Miles 2013](#); [Davis et al 2012](#); [Lotter et al 2003](#)).

Water loss, food production and food waste: The study needs to explore the extent of water loss as result of lack of access to appropriate technology or information both in agricultural production, processing, post-harvest loss and through food waste.⁷ The study can build on the existing CFS-HLPE work on this and examine the potential for investing in developing water conserving local technologies.

4. Policy recommendations

The study needs to explore the potential of Investing in agroecology. This may be the single most effective strategy to address water insecurities, especially in the rural areas around the world. It will simultaneously improve the soil productivity and agricultural outputs, enhance ecological functions, and help achieve progressive realization of the right to water and the right to food of small-scale producers and workers. The study must also explore the potential of public investment in water conserving techniques such as system of rice/ root intensification (SRI) and micro watershed development in agricultural lands, in rainwater harvesting and other water conservation efforts in public lands as well as through investing in waste water reuse for urban agriculture. When these investments are linked to agroecology these can help address water- climate and food crisis. In developing the policy recommendations, the study must explore the possibility of using the notion of water commons; the pertinent principles for managing certain forms of common property water regimes are well-studied and well-validated, including the work of the late Nobel Prize Winner Elinor Ostrom (Ostrom, 1990; Poteete et al., 2010). Privatization/ commodification and top-down management have comparatively weaker records at providing the greatest benefits to different levels of society.

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51. Sanrda Metayer, Coalition Eau, France

Consultation en ligne du Groupe d'Experts de Haut Niveau (HLPE) du Comité de la Sécurité Alimentaire mondiale (CSA) pour définir l'axe de l'étude sur : « L'eau et la sécurité alimentaire » (rapport 2015)

Réponse de la Coalition Eau - 28 février 2014

La Coalition Eau est un collectif de 28 ONG françaises engagées pour promouvoir l'accès à l'eau et à l'assainissement pour tous, tout en préservant les ressources en eau (<http://www.coalition-eau.org>)

⁷ See e.g. 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)*. Stockholm: Stockholm International Water Institute (SIWI), <http://www.siwi.org/publication/saving-water-from-field-to-fork-curbing-losses-and-wastage-in-the-food-chain/http://www.siwi.org/publication/saving-water-from-field-to-fork-curbing-losses-and-wastage-in-the-food-chain/> . They point out, the ~50% waste rate of food is important because "Food Wastage is Water Wastage".

La Coalition Eau se félicite du sujet choisi par le HLPE pour son rapport 2015, étant donné le rôle crucial joué par l'eau dans les questions de nutrition et de sécurité alimentaire.

A la lecture de la consultation électronique et des propositions du Comité directeur du HLPE sur le champ de l'étude, la Coalition Eau souhaite partager 3 commentaires, en particulier sur les aspects portant sur l'eau potable et l'assainissement :

1. Le droit à l'eau et à l'assainissement a été reconnu comme un droit de l'homme par l'Assemblée Générale des Nations Unies en 2010, ce qui n'est pas précisé dans le document de propositions du HLPE. Il sera crucial que l'étude présente le droit de l'homme à l'eau et à l'assainissement, l'état de sa reconnaissance au niveau national, l'état de sa mise en œuvre, ses implications concrètes, ainsi que ses liens avec le droit à l'alimentation.
2. Concernant les données empiriques sur l'assainissement et l'eau potable (et le nombre de personnes n'y ayant pas accès), la Coalition Eau recommande d'adopter un regard critique vis-à-vis des données existantes. En effet, les données officielles au niveau global sont issues du Joint Monitoring Program de l'OMS/UNICEF, qui a pour mission d'évaluer les progrès pour les cibles Eau et Assainissement des Objectifs du Millénaire pour le Développement. Or, les définitions utilisées par le JMP comportent de nombreuses limites. L'indicateur d'accès à l'eau mesure « l'utilisation d'une source d'eau améliorée ». Mais cet indicateur ne mesure en rien la qualité et la potabilité de l'eau, ni certains paramètres de l'accès comme la distance au point d'eau, le temps d'attente, etc. Ainsi, si le Joint Monitoring Program rapporte qu'environ 800 millions de personnes n'ont pas accès à une source d'eau améliorée, ce serait entre 2 et 4 milliards de personnes qui n'auraient pas accès à l'eau potable, selon diverses estimations d'experts.
 1. D'autre part, une attention particulière doit être portée aux inégalités d'accès à l'eau et à l'assainissement, qui subsistent entre pays mais aussi à l'intérieur des pays (zones rurales/ urbaines, populations riches/ pauvres, femmes/hommes...)
 3. Dans le cadre de l'accès à l'eau potable comme de l'accès à l'eau agricole, la question de la gouvernance et de la gestion de l'eau est cruciale. Il est maintenant largement reconnu que les problèmes d'accès ne sont pas dus à des pénuries de la ressource mais avant tout à la gouvernance du secteur. Insuffisante mise en œuvre des politiques publiques, insuffisance des cadres réglementaires et juridiques, fragmentations institutionnelles, mauvaise allocation des ressources ou non-respect des engagements pris, manque de capacité des acteurs du secteur, limites à la participation de toutes les parties prenantes... Tous ces facteurs sont autant d'obstacles qui doivent être étudiés afin d'établir des recommandations pour une meilleure gouvernance des ressources en eau qui impactera à la fois l'accès à l'eau potable et l'accès à l'eau agricole.

52. Land and Water Division of, FAO, Italy

HLPE – Water and Food Security

**Proposed text for the FAO Corporate Response
from the Land and Water Division of FAO**

The Land and Water Division of FAO welcomes the selection of the theme “Water and Food Security” by the 40th CFS and believes that the findings of the study will authoritatively contribute to the global discussion and the local solutions that take water issues in its broad context.

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

The literature is rich in studies on water and food security. In the recent past, major efforts have been made on the subject by large groups of researchers and practitioners, which have resulted in a good knowledge base to address the subject. Among these we would like to mention the Comprehensive Assessment of Water Management in Agriculture (2007), the State of Land and Water Resources for Agriculture and Food Security - SOLAW (2011) and the periodic issues of the World Water Development Report. On the data side, the UN-Joint Monitoring Programme on Water Supply and Sanitation and the FAO-AQUASTAT database offer the factual information base needed to provide a global perspective on water and food security.

Yet, the complexity of the water and food security relationship leaves a series of policy-relevant issues unsolved, and we would like to suggest that the study build on the above assessments and push forward the knowledge and understanding of major policy issues which have remained without response and deserve careful scrutiny. A series of topics are proposed below.

The relationship between water and food security is complex for several reasons. The four dimensions of food security offer four different entry points to the relationship with water, and they all need to be considered:

- Food availability addresses the supply side of food security and is determined in large part by the level of food production. This requires an understanding of the current capacity and potential for future water use in the production, processing and distribution of food, both globally and at national level, and the related issues of food trade and geopolitics. Issues of national level food security, in particular, and its relation with water availability, have received renewed attention since the 2008 food crisis and will need to be addressed in the study.
- Access to food is a combination of physical availability and economic capacity to purchase food. Here, water will affect different categories of people in different ways. For food producers, which represent a large part of the world’s population and a majority of the poor, water represents a critical production factor, the availability, accessibility and cost of which directly impact production, and, indirectly, food consumption and income. For the poor food consumers, price is the main vehicle through which water scarcity, and the related national and global food production capacity, is reflected.
- Food utilization relates to nutritional quality of food, feeding practices, and health. Here, the availability and quality of domestic water, and, to a certain extent, sanitation facilities, plays an important role in the quality of food and nutrition and in overall health status. Water availability for production and its quality are also closely connected to the capacity for the production of horticultural crops, the diversity of which plays an important role in the quality of nutrition.

- Finally, water plays a critical role in the stability dimension of food security, through the stability and reliability of water availability, both for domestic and production purposes, be it rainwater or irrigation water.

The multiple dimensions and scales of the water scarcity or water security issues add an additional level of complexity to the study. The three dimensions, i.e. physical, institutional and financial, of water scarcity that FAO has defined in its framework programme “Coping with water scarcity” may be an entry point to address this added complexity. It will be important to distinguish between the ‘macro’ issue of managing a limited resource (the *physical scarcity*), and questions related to food production potential, resource use efficiency, addressing competing sectoral claims, macroeconomics, social protection systems, virtual water, etc., and the ‘micro’ issues related to water service and access, where issues of domestic water, access, entitlement, equity, rights, etc. are predominant.

These problems are well known to the FAO Land and Water Division, and our response has usually been to acknowledge the variety of situations through a multi-dimensional programme focusing on a series of specific issues. The ‘systems at risk’ approach used in FAO’s ‘State of land and water resources for food and agriculture - SOLAW’ reflects the variety of specific situations and the need to adapt our response to these contexts.

Another consideration refers to the importance to acknowledge the driving forces guiding the use, management and governance of water. It is well established that water ‘flows’ across all the sectors of our economies and is affected by a series of external factors of which the most frequently mentioned are population growth and urbanization, economic development and consumption habits, changes in dietary habits, trade and globalization, sectoral policies and climate change. Water is known to have also been impacted by all the major crises such as those in global economy, energy, food, poverty and inequity. It therefore becomes increasingly difficult to address water issues through a sectoral lens only without considering the overall context in which water is managed. In particular, the overall weight of agriculture in national economies influences substantially the type of policy response options that can be proposed. This is striking, for instance, in countries in economic transition for which the water-food security issue is rapidly being integrated in a much more complex and multi-dimensional policy dialogue.

In summary, we believe that the main challenge of this study will be to come out with findings and recommendations that are sufficiently simple to help influencing action, while being sufficiently context-specific to ensure their relevance for decision making. Following Einstein, we would suggest that ***‘Everything must be made as simple as possible. But not simpler’***. In this perspective, we would welcome an approach that focuses on what we see as critical issues for the future of the water and food security topic:

- *Getting the facts right*: we observe that many water-related decisions are based on wrong assumptions and misconceptions about water, hydrology and the water balance, with subsequent sub-optimal or even counter-productive results in terms of economic return, social impact and environmental sustainability. It is important that the study ‘gets the facts right’, in particular in relation with consumptive and non-consumptive uses of water.
- *Governance of water*: agriculture represents 70% of all water use in the world, and more than 90% in many developing countries and is therefore both under pressure, given the increasing

competition with other sectors, and under scrutiny for its environmental footprint which, in an increasing number of places, leads to unsustainable water use patterns. Water governance models are needed that acknowledge the complex inter-relationships and sometimes conflicting societal goals. The need to address trade-offs will become increasingly frequent, and this study may want to assess implications of these trade-offs in terms of food security. The Water-Food-Energy nexus approach which is being promoted for the last few years claims that it offers a way to address these concerns, and guidance on the potential of such an approach would be welcome. (Some of these fundamental governance issues are mentioned in the scoping document but very late in the text, in the section on management. They should appear much earlier as they shape all the water-food security debate).

- *Groundwater exploitation*: we see the systematic overexploitation of groundwater in most agricultural regions as one of the most alarming challenges for the water community. With the advent of cheap drilling and pumping technologies, an increasingly large percentage of the world's farmers are putting in practice, day by day, the *tragedy of the commons*, and contribute to what looks very much like a time bomb in most water scarce areas.
- *Environmental impact of water use*: the combined pressure from all water users on the environment put unprecedented burden on key aquatic ecosystems, with direct threat on the services they provide, both today and in the future, including that of food production, in particular inland fisheries. Issues of water pollution from agriculture, and wastewater discharge from cities and industries directly affect food production and health, both at producer and consumer level. New, more sustainable models of water development are urgently needed, and the political will to adopt them needs to be strengthened, possibly beyond basin or national boundaries.
- *Access, entitlement and tenure*: with the growing pressure on water in river basins and aquifers, interferences between users and impacts of new developments on earlier users are increasing, with new challenges and implications for traditional users, in particular small and vulnerable users, with potentially significant impact on food security of large parts of rural populations. The *land grab-water grab* question is part of this problem, as well as the linkage between water and land tenure. This new trend is often ignored or underestimated, because of the difficulty in measuring and reporting about it, and its little political relevance. Yet, we believe that the dimension of the problem requires a much more careful attention than in the past, and we would be interested to hear from the Panel on this issue. It would also be interesting to assess how water prices and costs for water supply and treatment services impact food security. The sub-section on equity in the scoping document indicates that the report will look at implications on different gender and social groups. But the report also indicates that it intends to take a long term perspective. In a world in rapid transformation, some of the most vulnerable groups will hopefully evolve towards more favourable conditions, and this needs to be considered.
- *Right to water - right to food*: the right to water and the right to food are both recognized as fundamental rights. In the case of the right to water, this is confined to the right for sufficient water for drinking and basic domestic functions. However, there are claims that a much closer linkage could be made between the right to water and the right to food, considering also the water needed for food production. This right-based approach to water and food security has not been the subject of much attention so far.

- *Investments, technologies and modernisation:* Investments in irrigation have for long represented a large percentage of agricultural investments and are still an important element of current agricultural policies in many countries. For the last 20 years, efforts have been made to develop better models of water management in irrigation, with mixed results, in terms of productivity, environmental sustainability and equity. Corruption and vested interests are rarely addressed, yet they influence decisions both in investments and in management, and impact on the overall performance of the sector. With ageing infrastructure, and the need for improved productivity, investments and improved management will remain important, and need to become more responsible. The role of innovation and technology trends must be investigated carefully: can technology change some of the fundamentals? Where do we stand with management models? What is the situation with water pricing and irrigation management transfer? The cost of poor investments and management and implication for food security deserve careful attention.
- *Climate change adaptation and disasters (floods and droughts):* the scoping paper suggests to address the question of climate change and its impact on water availability for food security. We concur, and stress the potentially devastating effect of climate change on water resources and, through water, on food production in several parts of the developing world, including the Near East and North Africa, all the semi-arid tropics, small islands and delta areas, and the necessity to provide a response now. The increasing occurrence and intensity of floods and droughts in densely populated rural areas as a result of climate change are to receive special attention. Variability and risks will be important to consider.
- *Health and nutrition:* the scoping paper rightly stresses the importance of water for health and nutrition, of which safe drinking water and sanitation are a key element. This element of the discussion also bears an important gender dimension. It also brings the issue of diet and diversification, including fresh food, fish and livestock/dairy products, and feed production. The Division welcomes this broad approach to the water-food security debate, and is looking forward for recommendations in this sense.
- *Local problems in a globalized world:* In a growingly interconnected world, consumption patterns in one part of the world can affect food security in another part. In past 10-20 years, attempts have been made to address this complex issue through the concept of *water footprint*, with some success in measuring the impact of consumption patterns in terms of water use. The concept has remained mostly a research topic, with little implications in terms of policy decision. On the other side, growing scarcity of water in an increasingly large number of regions affects national food security, and the increasing reliance on international trade to compensate for production deficit, with substantial geopolitical implications. The question arises now whether water issues can continue to be considered local issues, or whether they have now taken such a dimension that they deserve attention as a global problem.

Finally, we would like to offer a few comments and suggestions on the scope and structure of the report:

- *Scope of the study*: the scope of the study should be kept as broad as possible, and cover health and nutrition, agricultural production, livestock and feed production, fisheries, and aquaculture, the agro-food chain and ecosystem services for water and food security.
- *Policy recommendations*: We know that policy recommendations in water for food are not new but that some of them have not resulted in substantial changes. In drafting its last section, the Panel may want to acknowledge the difficulty associated with these recommendations and discuss how to make them happen, and how to manage transition towards models of water management in agriculture which are more effective in terms of food security, today and in the future.
- *Response options*: A passage added to the scope will be useful requesting the inclusion of response options in the report and on how response options are key for decision-makers, politicians and chief executives in complementing policy recommendations that set the ground for, inter alia, reforms, legislation, regulation, enabling environments, leveling playing fields, and protecting the unprivileged. Response options make these applicable (specific) to varying contexts, defined by combinations of economic conditions, governance systems, social make-up, physical and physiological circumstances. It would also be worthwhile to establish linkages to important policy tracks and processes (e.g. post-2015, global governance, climate change) as well as to contextualize for some of the key actors such as finance sector, investors, development partners, and philanthropy.

53. Groupe interministériel sur la Sécurité Alimentaire (GISA) , France

Position du Groupe Interministériel français sur la sécurité alimentaire

GISA – France <http://www.gisa-france.fr/> consultation sur les termes de référence de l'étude HLPE «eau et sécurité alimentaire »

Le Comité de la sécurité alimentaire mondiale (CSA), dans sa 40ème session, a demandé au HLPE une étude sur la problématique "eau et sécurité alimentaire" en lui demandant de centrer ses analyses sur :

- *"Les effets des pratiques de gestion de l'eau sur la sécurité alimentaire, y compris l'utilisation aux fins de la production agricole, de la transformation des aliments et d'autres modes de consommation*
- *la durabilité des systèmes de gestion de l'eau pour la sécurité alimentaire, incluant des systèmes d'irrigation, à la salinisation des terres agricoles et à la baisse de la qualité des nappes phréatiques.*
- *L'amélioration des politiques concernant l'eau et la sécurité alimentaire, ainsi que la coordination entre les différents domaines et acteurs à tous les niveaux et sur le long terme."*
- Les entrées proposées dans les termes de référence sont pertinentes et recourent plusieurs des préoccupations exprimées lors des précédents travaux au niveau national en France et international :
- Etat des lieux de l'utilisation de l'eau pour la santé, la nutrition et la sécurité alimentaire – tendances mondiales et régionales

- Etat des lieux des pratiques, instances et acteurs participants à la gouvernance de l'eau pour la sécurité alimentaire
- Analyse des effets, de la pertinence et pérennité de ces modes de gestion de l'eau (techniques et institutionnelles) pour la sécurité alimentaire, incluant la question fondamentale de l'équité
- Elaboration de recommandations finales de politiques pour la gestion de l'eau et la sécurité alimentaire

Cette pluri orientation correspond à ce qui avait été retenu pour la réflexion internationale conduite sur cette problématique à l'occasion du 6^{ème} Forum mondial de l'eau.

Toutefois, les remarques et recommandations suivantes peuvent être formulées :

1 – L'état des lieux de l'utilisation de l'eau devrait également mentionner de façon explicite la place de l'hygiène, de l'accès à l'eau potable et à l'assainissement et des pratiques de soins comme un des pré-requis de la sécurité nutritionnelle.

2- L'étude devrait rappeler et documenter le fait que l'eau n'est pas seulement un intrant et un facteur de production : l'orientation proposée pour l'étude considère uniquement l'eau comme un facteur de production.

Plus encore que les rapports de l'homme à la terre, les rapports de l'homme à l'eau sont encore des rapports des hommes entre eux autour de l'appropriation et de l'usage de cette ressource. C'est le seul bien commun qui présente notamment la caractéristique d'être un flux nécessairement partagé d'amont en aval. Au delà d'un intrant fondamental, elle est aussi un élément structurant de l'organisation de territoires ruraux et parfois urbains avec des organisations (irrigants, pasteurs, comités d'usagers, etc..) qui se sont historiquement et depuis des siècles organisées pour gérer, partager et protéger la ressource (et parfois aujourd'hui source de conflits locaux ou transnationaux). Des institutions de gouvernance de la ressource en eau sont souvent très anciennes, qui structurent également des modes d'organisations et de démocratie locale. Au delà d'enjeux techniques et économiques – fondamentaux par ailleurs - les enjeux sur le partage et l'usage futur de l'eau pour la sécurité alimentaire ne peuvent être déconnectés d'une vision historique, sociale et des questions de démocratie et d'équité, qui devraient être abordés et rappelés en amont de cette étude.

3- L'état des lieux sur l'utilisation de l'eau pour la sécurité alimentaire et nutritionnelle devrait être précisé et intégrer une analyse fine des causalités et conséquences :

- Préciser les tendances par zone géographique, en distinguant notamment des régions disposant de ressources en eau abondantes et encore relativement peu mobilisée et les régions en pénurie structurelle croissante, les « zones sèches ». L'étude devrait s'attacher ainsi à mettre en exergue :
 - les ressources disponibles et les tendances observées dans les différentes grandes régions mondiales en distinguant le cas des zones sèches,
 - la montée observée et annoncée des problèmes de pénuries d'eau en tenant compte des projections démographiques et des impacts possibles du changement climatique,
 - l'importance de la ressource disponible et non mobilisée dans les pays à ressources

abondantes.

- Dans le cadre de l'état des lieux des conséquences du manque d'accès et de disponibilité d'eau propre sur la santé des populations, il convient de préciser notamment les liens avérés entre accès durable à l'eau potable et statut nutritionnel.
- S'intéresser à l'évolution des consommations et droits/dotations y référant eu égard à différents usages, incluant le secteur agricole et alimentaire, en différenciant les dotations et consommations de l'agriculture familiale, versus d'autres modalités d'agriculture en développement (agro-industrie, plantations en monocultures – soja, palmier à huile, agrocultures, etc...), de même que le secteur industriel manufacturier, dans ses différentes composantes, sans oublier le secteur minier en plein développement dans de nombreux pays.
- Préciser l'état actuel des processus d'investissements à grande échelle, d'accaparement des terres et des eaux et leur impact sur la sécurité alimentaire et nutritionnelle, en particulier sur les populations qui en sont des acteurs fondamentaux, mais souvent les plus vulnérables en particulier dans les rapports de force et de pouvoir : les producteurs et productrices familiaux.
- Au delà de l'état des lieux, s'attacher à détecter les causes éventuelles de dégradation de la qualité de l'eau par acteurs : cf. évolution des modes agricoles dans certaines régions du monde, du développement industriel et minier, etc... .
- Concernant la durabilité des systèmes de gestion de l'eau, l'étude ne devrait pas s'arrêter aux seuls éléments cités concernant la durabilité des systèmes irrigués, la dégradation des eaux souterraines ou la salinisation des sols, mais s'intéresser également à :
 - la surexploitation inquiétante de nombreuses ressources souterraines et aquifères, parfois liée au développement de systèmes agricoles intensifs en capital et peu durables.
 - la dégradation des terres pluviales (érosion, non conservation des eaux et des sols, etc..) alors que nombre de pays font face à un abandon de politiques et d'investissements sur l'agriculture pluviale dans ces zones sèches.
 - la perte de terres agricoles potentiellement irrigables ou à fort potentiel en pluvial avec des pratiques améliorées pour la gestion de l'eau, notamment par l'urbanisation agressive et l'étalement urbain.
- Attention finalement à ne pas oublier l'usage de l'eau pour la production alimentaire d'origine animale (par ex : accès à l'eau en zone pastorale, base économique dans plusieurs pays sahéliens ou de montagne), y compris la pêche.

4- L'étude devrait questionner les critères utilisés relatifs à l'efficacité dans la gestion et l'utilisation de l'eau à des fins de sécurité alimentaire et nutritionnelle :

- Attention en effet au choix d'indicateurs qui pourraient justifier de pratiques favorisant les intérêts de quelques secteurs au détriment d'autres. L'eau n'est pas seulement un "facteur" de production et donc une pure ressource technique et économique, mais bel et bien d'abord et avant tout un bien commun. Par ailleurs, les mal nommées "pertes en eau" n'en sont souvent pas, l'eau étant un bien pouvant être par exemple récupéré par des utilisateurs en aval, même lorsqu'il y a supposée "gaspillage".
- Les critères de mesure quantitative ou qualitative de l'efficacité dans l'utilisation de l'eau par différents usagers devraient être critiqués par l'étude et dans tous les cas, aller bien au delà de la simple "empreinte hydrique", mais prendre en compte des critères par ex. sur :
 - La protection et le renouvellement de la ressource

- La création directe ou indirecte d'emplois
- La création de valeur ajoutée et sa redistribution à différents acteurs de la société
- L'augmentation des capacités d'adaptation et résilience des populations les plus impactées par le réchauffement climatique
- L'accès à l'eau en qualité et en quantité suffisante pour les populations les plus vulnérables

5- L'étude devrait identifier de manière fine les facteurs limitant ou au contraire facilitant une gestion et gouvernance de la ressource en eau, participative, transparente et équitable

- L'étude proposée devrait certes décrire les différentes catégories d'acteurs qui participent aujourd'hui de la gouvernance de l'eau pour la sécurité alimentaire – de même que ceux qui en sont exclus –, et leurs capacités actuelles ou potentielles à y participer. Mais tous les acteurs mentionnés sont en capacité de jouer un rôle sur la gouvernance de l'eau et tous ont des droits. L'étude devrait analyser de manière fine comment les systèmes politiques et les institutions donnent aujourd'hui leur place respectueuse et légitime à ces différents acteurs pour qu'ils puissent exercer leurs compétences, faire valoir leurs droits et contribuer à l'élaboration de politiques et d'options institutionnelles, dans des relations justes et équitables.
 - La mise en oeuvre des principes de la gestion intégrée des ressources en eau (GIRE) devra être étudiée. En effet, L'approche de gestion intégrée des ressources en eau contribue à la gestion et à l'aménagement durables et adaptés des ressources en eau, en prenant en compte les divers intérêts sociaux, économiques et environnementaux. L'approche intégrée permet de coordonner la gestion des ressources en eau pour l'ensemble des secteurs et groupes d'intérêt et à différents niveaux. Elle met l'accent sur la participation des acteurs à tous les niveaux dans l'élaboration des textes juridiques, et privilégie la bonne gouvernance et les dispositions institutionnelles et réglementaires efficaces de façon à promouvoir des décisions plus équitables et viables.
 - L'étude devra prendre en compte le cas particulier des bassins transfrontaliers (eau de surface et souterraine). Quelque 260 bassins fluviaux sont partagés par deux pays ou plus dans le monde. Près de 40 % de la population mondiale vit dans ces bassins.
- Force est de constater que les plus "petits" d'entre-eux (producteurs/trices, communautés, populations autochtones, etc...), acteurs pourtant fondamentaux de la sécurité alimentaire et nutritionnelle, s'ils en ont les capacités et les droits – souvent historiques – ont été pour beaucoup jusqu'à présent exclus des décisions sur l'eau, voire spoliés de leurs droits.
- Dans ce domaine, s'il est tout à fait fondamental de s'intéresser aux rôles et contributions potentielles des femmes dans la fourniture d'eau et d'aliment – et au-delà de la simple fourniture, dans la gestion et gouvernance de la ressource en eau - , l'étude devrait élargir son "attention spéciale" à trois groupes cibles fondamentaux dans la fourniture d'eau et d'aliments et dont beaucoup souffre de situations de spoliation, d'accès difficile et de non participation à la gouvernance de l'eau notamment les femmes, les familles paysannes et les communautés rurales.
- Outre la catégorisation de ces acteurs, l'étude devrait donc clairement identifier les facteurs

limitant ou pouvant favoriser une participation active et équilibrée dans la gouvernance de l'eau, intégrant l'impératif de la sécurité alimentaire et nutritionnelle. Une analyse historique de la "gouvernance" de l'eau dans différentes situations du monde serait par ailleurs pertinente pour éclairer les recommandations futures du HLPE.

- Concernant l'analyse des politiques pour garantir la sécurité alimentaire et de la gestion durable des ressources en eau, l'étude devrait aborder non seulement via un recensement et une analyse des politiques et institutions existantes mais se poser la question de leur pertinence et efficacité pour une répartition juste et équitable de la ressource en eau au regard d'enjeux pluriels :
 - d'accès à l'eau potable pour tous
 - d'accès à l'eau pour la production alimentaire et la sécurité alimentaire et nutritionnelle, mais également :
 - de création d'emplois
 - de protection de la ressource et de l'environnement
- En ce sens, l'accès à l'eau des petits producteurs/productrices et le soutien aux agricultures familiales qui par ailleurs peuvent avoir aisément une gestion durable de la ressource en eau, devraient rester des priorités absolues.

6- En matière de gestion de l'eau, au delà de l'extension des zones irriguées, l'étude devrait identifier d'autres voies innovantes qui ont d'ores et déjà montré tout leur potentiel :

- identifier quelles autres voies jusqu'ici peu explorées et peu financées par les Etats et les bailleurs internationaux, seraient en mesure d'optimiser l'usage de l'eau agricole en particulier, sans investissement démesuré : voire notamment toute la petite hydraulique (citernes, aménagement de bas-fonds et petits réservoirs, micro-irrigation, puis pastoraux, etc...) et les gains d'économie et de valorisation de l'eau en agriculture pluviale (pratiques de CES et agroécologiques dont pratique de zaï, labour minimum, semi sous couvert végétal, mulch, etc...)
- s'interroger sur la réutilisation des eaux usées.
- s'interroger sur les approches les mieux adaptées et les plus efficaces pour étendre aujourd'hui les zones irriguées, à partir de nombreuses expériences passées et d'ores et déjà capitalisées : gestion sociale de l'eau, renforcement des organisations d'irrigants, mise en place de centres de services aux usagers, etc.

7- L'étude devrait également recenser les innovations existantes en matière de gestion de l'eau qui est mise au défi par la nécessaire augmentation requise des capacités d'adaptation des populations rurales au changement climatique

- Quelles implications sur les priorités politiques, financières et d'attribution de droits d'eau pour limiter des vulnérabilités fortes et renforcer la résilience des populations rurales et paysannes ?
- Les TDR soulignent que le rapport "devrait également jeter un regard critique sur le potentiel des innovations technologiques et institutionnelles pour la conservation de l'eau et son

utilisation durable dans le contexte du changement climatique", dont il faut ici rappeler que certaines sont par ailleurs des "innovations" déjà existantes mais peu connues et peu valorisées, alors qu'elles ont déjà été historiquement développées (ex : pratiques d'agroécologie historiques, pratiques paysannes de collecte de l'eau, etc...)

54. Government of the United States

Comments from experts and program areas within the U.S. government on the proposed scope of the Food Security and Water report: (11 unique comments were submitted and are provided below).

1. *In the document there was discussion on ground water and mapping updates but nothing about specifics on sustainability of that ground water or ground water recharge issues. If this is not thought about there will be a loss in capacity to provide water for food in the long run.*

There is also an interesting solution for ground water recharge done by a British NGO organization where they make earthen berms for ground water recharge. General discussions on the topic can be found via google using the search words "earthen dams for ground water recharge".

2. *While the need for metrics is mentioned, there is no discussion of methods to estimate water use. Models exist that if unified would allow for estimation of irrigation water use, but the hydro, land soil moisture models, and irrigation estimates have not yet been integrated. I would encourage that you consider rephrasing the scope to discuss methods of estimating, rather than metrics.*

Also, my colleagues and I have observed instances of water resources foreign aid projects that have worked counter to overall security and sacrifice one area's water needs for those needs downstream. I would suggest including a discussion of not only what actors are responsible for which components, but how their activities can be integrated. Just simply adding a coordinate or bounding box to a project can go a long way in terms of allowing partners to integrate their data, projects, and project goals. Planning for information integration will be key to supporting better management decisions.

Finally, while I applaud the cross-sector approach at food and water, there is a lack of attention to energy and food competition for water. International water use for biofuels and regular choices between using hydropower for food or energy is a major aspect of the management of water for food security. It's mentioned in water management, but I think energy should appear more prominent in the management heading

3. *In the opening paragraph, the document states:*

1) *"Water has an important role in food security through its multiple impacts on: health and nutrition (drinking water, cooking water, sanitary aspect/diseases), on agricultural production (access to water, water management, improvement of irrigation and dryland agriculture) and on food processing (water management, quality of water...)."*

2) *Later on Page 4, we read: "First, the HLPE proposes to summarize the latest evidence-based information on the use of water for health and nutrition (drinking water, cooking water, sanitary aspect/diseases), and for food and agriculture..."*

There is a complex interplay between unsafe water, diarrheal diseases, and malnutrition. There is also a growing recognition that water that is microbiologically safe is an essential component of any program to protect or improve the nutritional status of children. Water itself contains very little of nutritive value, but consumption of microbiologically unsafe water is a major cause of diarrheal diseases in children, and the nutritional consequences of diarrheal diseases in children can be devastating. Any infection taxes the bodies stores of micronutrients (particularly zinc) and protein and calories. Diarrheal infections are particularly troublesome because they interfere with the absorption of nutrients from food, making it difficult to replenish depleted nutritional stores. Infections with enteropathogenic Escherichia coli (E. coli) and Cryptosporidium damage the intestinal lining causing persistent diarrhea and chronic malabsorption of nutrients, including protein and calories. Shigellosis and other diarrheal infections cause fever, which is associated with increased caloric expenditures, and can cause bloody diarrhea which contributes to iron deficiency. Thus, drinking water quality directly impacts food security. Furthermore, poor hygiene is a well-documented risk factor for diarrheal diseases transmission. Sufficient quantities of water that is microbiologically safe are needed for people to adopt regular handwashing after toileting, and before preparing our consuming food) which are key behaviors in preventing the spread of diarrheal diseases. Additionally, to reduce the risk of foodborne diarrheal infections, safe water should always be used for food preparation, particularly for those foods that will be consumed raw, such as fruits and vegetables.

There are a number of publications about this issue, but I think the best source for those would be Dan Campbell who manages the WASH/Nutrition Library for USAID ([Dan Campbell dacampbell@fhi360.org](mailto:dacampbell@fhi360.org)).

4. *As a general matter, this paper has an extremely ambitious scope. The data to do what is proposed does not exist and since only source countries can provide the data, it tends to be estimated without a consistent methodology. This leads to misstatements or pronouncements without any data support. For example, to support policy recommendation 1, the proposal calls for “Metrics on global freshwater withdrawals for food production,” a very ambitious goal. Only a relatively small set of countries around the world have reliable data on water withdrawals by sector. (A lot more have “data” but reflecting political forces rather than hydrologic reality.) A careful examination of withdrawals and the quality of supporting data would be a worthy study.*

The scoping paper goes on to call for estimation of water footprints (see policy recommendation 3), which are based on consumptive use volumes. And while needed and a goal to strive toward, is beyond any current hope of completion. Just for good measure all this occurs while considering the effects of a changing climate. We doubt a footprint analysis is possible in more than a half dozen nations with any degree of accuracy and with a climate change wrinkle added the number of nations that can do this drops to only a couple. We do not believe the data is available to support the proposed level of analysis.

Couple the data driven portion of the report with the social issues of governance (policy recommendation 2) and policy recommendations presumably based on the findings from the other elements and you have a condition that the policy needs data for its base but since the data is not available, and policy is needed now, recommendations are made. While we understand that recommendations are needed now, why go through all the hand wringing and just do a good policy piece with scenarios based on likely data and governance conditions.

In summary, the scope is too ambitious and will likely lead to an unsuccessful report as specified. Compromises in data quality and coverage will limit the reliability of the findings. The report would be better served with well thought out separate reports on 1) data quality, and 2) governance, and policy options given alternative scenarios on data and governance structures.

5. *The collection of world-wide data that are evidently needed to address a number of the proposed research questions would indeed be a monumental task. The proposal recognizes a great many facets of the challenge and potential solutions. Better to narrow the scope considerably to a set of compelling and useful questions that can be answered fairly well with the available resources (time, funds, people).*

A fundamental challenge is drawing lessons from extremely diverse food production systems. Lessons learned in one place may be of little value elsewhere.

The proposal might be strengthened if it reads more like a research proposal, presenting some actual evidence that reveals a particular set of gaps that needs to be addressed.

The concept of climate-smart agriculture (CSA) offers a way forward in addressing climate impacts on crop production and some of the CSA literature may be worth consulting in identifying a useful direction for this effort.

The words “precipitation” and “rain” are nowhere mentioned, although a substantial amount of agriculture depends on rain fed crops. One challenge is delivering to smallholder farmers in developing countries useful information about climate, weather, drought-resistant varieties and agricultural techniques that can help reduce risk of crop loss due to drought (like increasing organic matter in soil). This might be a direction worth focusing on.

6. *The proposed report on Water and Food Security, as outlined in the scoping paper, represents a very ambitious program of work. Many of the issues raised have been examined at some length in earlier documents (see references below). While critical issues may be identified in the report, the scope of analysis may not necessarily need to encompass all dimensions of the water and food security challenge. We agree that the current report could be focused more on institutional, legal and technical innovations that may help to enhance future sustainability of the global food system. Under topic 3, ‘Management of water for food and nutrition security’, the authors may wish to deemphasize discussion of international food trade. The comparative trade advantage conferred by water resources operates on a completely different level from the water access, water quality, water rights issues that are the basis of other components of the scope of work. The data sets and empirical tools for analysis are also quite different.*

The discussion of governance under topic 3 would still be relevant. However, the breadth of the proposed objective—“.. to critically analyze the impacts of different governance regimes for water management..” is quite ambitious, particularly when considering “.. both negative and positive i) environmental impacts; ii) social and cultural impacts; iii) public health impacts; and iv) economic impacts”. A thorough treatment of these effects, given their complexity and importance, may be more appropriate as a stand-alone effort.

The scoping paper does not explicitly account for important differences in water management perspectives at alternative scales of assessment: farm/firm, regional/watershed, and national. These are often quite different, involving differing stakeholders, objectives, and policy choices.

Some consideration of this may be appropriate in a discussion of water institutions and policy.

Suggested resource publications to utilize in drafting the VO:

Foresight. The Future of Food and Farming. 2011. The Government Office for Science, London. <http://www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf>

IWMI, 2007. Water for food. Water for life. A Comprehensive Assessment of Water Management in Agriculture. Molden, David, Ed. London, Earthscan and Colombo: International Water Management Institute. http://www.iwmi.cgiar.org/assessment/files_new/synthesis/Summary_SynthesisBook.pdf

OECD, 2010. Sustainable Management of Water Resources in Agriculture, Joint Working Party on Agriculture and the Environment, Organization for Economic Co-operation and Development, DOI 10.1787/9789264083578-en, <http://www.oecd.org/tad/sustainable-agriculture/49040929.pdf>

OECD, 2011. Water Governance in OECD Countries: A Multi-Level Approach, Organization for Economic Co-operation and Development, ISBN 978-92-64-11928-4 (PDF), http://www.waterforum.net/Content/Artikel/4000-5000/4243/OECD_rapport_water_governance_130220104537.pdf

Rosegrant, M.W. et al., 2014. Food security in a world of natural resource scarcity: the role of agricultural technologies. International Food Policy Research Institute (IFPRI). <http://ebrary.ifpri.org/cdm/singleitem/collection/p15738coll2/id/128022/rec/7>

Schlosser, C.A. et al. 2014. The Future of Global Water Stress: An Integrated Assessment. MIT Joint Program on the Science and Policy of Global Change, <http://globalchange.mit.edu/research/publications/2770>

Strzepek, K. et al. 2012. Modeling Water Resource Systems under Climate Change: IGSM-WRS. MIT Joint Program on the Science and Policy of Global Change, <http://globalchange.mit.edu/research/publications/2374>

7. *This appears to be a hugely ambitious all-encompassing scope of work to complete in the time frame cited. It's hard to think of adding anything; the relevant issue may be what ends up getting prioritized and addressed effectively in order to complete the project within the available literature and time frame.*

IWMI would appear to be a significant repository of data and research on water management issues for agriculture, but we have to assume that FAO plans to involve IWMI in the project. "The Role of Water Resources in Prospects for Indian Agriculture" is a cooperative research project between the Economic Research Service of USDA and the International Water Management Institute that was initiated in late 2013 and will begin to yield research results by late 2014 or early 2015. Under this project, IWMI will develop a hydrological model of major Indian agricultural regions to study scenarios focusing on the role of groundwater availability and policies that affect groundwater supplies on long term projections for Indian food production. The questions to be addressed are: 1) How are water scarcity and variability developments likely to shape supply (area and yield) and

demand projections for major Indian crops to 2025? And 2) What technical or policy assumptions related to water are likely to have the most impact on projected outcomes for Indian crops to 2025? A copy of the project proposal is attached, and more details are available on request.

8. This proposed study is envisioned to be high level without getting into the on the ground realities, and it is not clear how it will translate into the proposed policies. We would like to see some discussion of water conservation for agriculture and improved ag methodology that reduces the need for water.

In addition, the study mainly focuses on demand for water without much consideration of natural supply of water- sustainable water extractions both from surface and groundwater sources to preserve the natural systems. We are concerned about overtaxing water resources especially extensive use of groundwater for agriculture without understanding the sustainable yield and management of groundwater aquifers and natural water systems. We suggest addressing sustainable development of groundwater for agricultural use. We would like to see close cooperation with UN Water both by UN World Meteorological Organization and UNESCO on sustainable use of water resources for food security.

Below is a list of water concerns when it comes to livestock and fisheries from our point of view in disaster response.

Livestock:

- Adequate supply and access for livestock populations, especially in drylands and dry periods.
- Water hygiene at water sources for human and livestock populations
- Water conservation in water points for livestock
- Conservation agriculture practices in rangelands that preserve soil water accumulation and reduce / control surface water runoff.
- Fisheries:
- Dynamics of global temperature patterns and changes that affect the water climate for fish species.
- Loss of water bodies and stream levels that support native fish species
- Maintenance and replacement of mangrove estuaries that provide feeding and breeding environments for aquatic species
- Oversight and regulations that manage fishing off-take in order to preserve a sustainable fish environment
- Conservation agriculture practices that prevent or minimize crop chemicals, silt and other residues that are detrimental to healthy streams, rivers and oceans

9. The role of young girls in terms of providing access to water is a paramount topic, especially where it relates to their rights and responsibilities. It has further implications for the society as a whole in terms of education obtained and possibly future employability of women. It might also be beneficial to look into the connection between irrigation (especially when it comes to agricultural purposes) and land rights. Land rights are complex and vary greatly from country to country, however in some countries, the type of infrastructure that is built on land is directly dependent on who owns it.

Farmers might be willing to irrigate, but without ownership of the land, it is simply not possible. Moreover ownership will also affect the future management of the infrastructure. Another key topic is science and technology (engineering) in terms of strides that have been made to access water and the quality of the water. Looking at the issue from a food security angle, the impact of climate change and how governments plan / are dealing with it (i.e. issues of cooperation/communication) is also key.

10. *Addition of sections on management of sanitization of portable water, water borne diseases in populated areas, water consumption of ranching of cattle/livestock, and re-engineering of crops/plants to adapt changing fresh water scarcity, etc. would make the report more complete.*

11. *The document should briefly address that agricultural activity itself degrades water quality and affects human health and food production in both local and distant areas. A good case in point is that increasing agricultural productivity is associated with increasing use of fertilizer over broad areas. See, for example, transport of nutrients from cropland in the US midwest to the Mississippi River and the Gulf of Mexico. The annual occurrence of a hypoxic zone in the Gulf affects fisheries in this important near shore marine environment See, for example, http://water.usgs.gov/nawqa/sparrow/gulf_findings/primary_sources.html*

55. High Council for Food, Agriculture and Rural Spaces, France

Avis du Conseil Général de l'Alimentation, de l'Agriculture et des Espaces Ruraux
(CGAAER / High Council for Food, Agriculture and Rural Spaces)⁸

1. Le champ de l'étude et la prise en compte des acquis internationaux

Le Comité de la sécurité alimentaire mondiale (CSA), dans sa 40^{ème} session, a rappelé le rôle important et multidimensionnel de l'eau pour la sécurité alimentaire et demandé au HLPE une étude sur cette problématique en lui demandant de centrer ses analyses sur :

⁸ Auteur de l'avis : Guillaume BENOIT, Ingénieur général des ponts, des eaux et des forêts, président du groupe "eau et sécurité alimentaire" du Partenariat français pour l'eau, auteur du rapport Eau et sécurité alimentaire du CGAAER.

- la question de l'eau en tant que ressource des productions agricole et agro-alimentaire,
- la question de la durabilité des systèmes productifs,
- les recommandations pour améliorer les politiques de l'eau et de la sécurité alimentaire ainsi que les coordinations entre secteurs et acteurs à tous les niveaux et dans une perspective de long terme.

Cette triple orientation est bienvenue. Elle correspond d'ailleurs à ce qui avait été retenu pour la réflexion internationale conduite sur cette problématique à l'occasion du 6^{ème} Forum mondial de l'eau. L'étude pourra donc s'appuyer sur les travaux conduits à cette occasion tout en approfondissant certaines questions afin d'aboutir à des recommandations aussi utiles que possible.

La France, en tant que co-organisateur du 6^{ème} Forum mondial de l'eau (Marseille, février 2012), a apporté une contribution importante à la réflexion internationale de ces dernières années. Elle a en effet :

- mis en place un groupe « eau et sécurité alimentaire » au sein du Partenariat français pour l'eau (PFE), et documenté 40 exemples de solutions dont 3/4 hors de France,
- élaboré et publié le rapport « L'Eau et la sécurité alimentaire dans le contexte du changement global : défis et solutions. Contribution au débat international » (CGAAER, février 2012) http://agriculture.gouv.fr/IMG/pdf/Eau_et_securite_alimentaire_VA
- organisé un panel de haut niveau sur ce thème lors du Forum mondial de Marseille,
- organisé en février 2013 à Montpellier avec le Maroc et de nombreuses institutions compétentes de la Méditerranée le séminaire d'experts sur l'eau et la sécurité alimentaire en Méditerranée (« SESAME »),
- élaboré des notes de synthèse politique sur la problématique de l'eau et de la sécurité alimentaire (note PFE, note SESAME sur la Méditerranée, note pour le panel du 6^{ème} mondial de l'eau).

Le rapport du CGAAER et les policy brief du Panel et du séminaire SESAME sont disponibles en versions française et anglaise.

<http://www.agropolis.fr/pdf/actu/2013-communique-de-presse-sesame-mars.pdf>

<http://www.agropolis.org/pdf/news/2014-sesame-synthesis.pdf>

Ces travaux ont conduit à mettre l'accent sur :

- La nécessité de bien prendre en compte les problèmes spécifiques des « zones sèches » (arides et semi-arides) où la conjugaison de plusieurs problèmes - pénuries d'eau et importations alimentaires fortement croissantes du fait notamment d'une croissance démographique double à celle dans le reste du monde, mise en danger de nombreux systèmes productifs, forte vulnérabilité au changement climatique, coûts devenant insoutenable dans plusieurs pays des subventions à la consommation des produits de base alimentaires et énergétiques – conduit à des risques systémiques croissants et graves d'insécurité alimentaire locale, régionale et globale.
- Les multiples problèmes de non durabilité à prendre en considération
- La nécessité de porter une grande attention à la question de l'agriculture pluviale et pas seulement irriguée.

- L'importance décisive de la « petite agriculture » pour la bonne gestion de l'eau agricole afin d'améliorer la sécurité alimentaire. L'accent a été porté notamment sur la question des droits d'accès à l'eau agricole, des modes de gouvernance permettant d'assurer une gestion durable et équitable de la ressource et du renforcement des capacités (formation, associations d'irrigants).
- Le rôle possible de l'agriculture pour la production de services environnementaux fondamentaux et donc comme élément de solution aux problèmes de l'eau.
- La nécessité de mobiliser tous les leviers (offre et demande, gouvernance territoriale...) pour renforcer la productivité, la durabilité et la résilience des systèmes et mieux satisfaire les 4 dimensions de la sécurité alimentaire. Mieux gérer l'eau, en pluvial comme en irrigué, ne signifie pas seulement produire plus et accroître la disponibilité. Il s'agit aussi fondamentalement de :
 - pouvoir accroître les revenus des producteurs vulnérables et des communautés rurales afin d'améliorer l'accès à l'alimentation.
 - renforcer la stabilité en réduisant la vulnérabilité des systèmes et sociétés aux risques (sécheresses, inondations, pénuries d'eau et alimentaires). L'importance du stockage comme « outil de gestion des risques » devrait notamment être considérée.
- L'importance fondamentale de la gouvernance territoriale et de pouvoir agir à plusieurs échelles de territoire emboîtées.
- La triple nécessité :
 - d'un changement de paradigme dans nos visions et nos politiques
 - de réussir une nouvelle alliance entre la productivité et les écosystèmes (question fondamentale de l'intensification écologique et de la durabilité) notamment par la promotion d'agricultures durables (agricultures à double ou triple performance) et par la gouvernance territoriale de l'eau ;
 - de nouvelles prises de conscience par la société des interdépendances croissantes entre amont et aval, entre villes et campagnes et entre pays riches et pauvres en eau, et donc aussi du nécessaire renforcement des solidarités.

Ceci nous conduit à formuler les 9 remarques suivantes sur l'orientation proposée pour l'étude.

2. Les différences de situations régionales sur l'eau et la sécurité alimentaire, la nécessité d'une prise en compte spécifique du problème des zones sèches

L'orientation proposée pour l'étude ne fait aucune mention de la nécessité d'une prise en compte spécifique de la problématique des « zones sèches », tout en faisant référence au problème de la raréfaction des ressources en eau.

Il nous paraît pourtant indispensable que l'étude mette bien en évidence la différence de situations entre les grandes régions mondiales, notamment entre les régions qui disposent d'une ressource en eau abondante et encore relativement peu mobilisée (c'est le cas par exemple en France, y compris en France méditerranéenne, comme dans une grande partie de l'Afrique subsaharienne) et les régions en pénurie structurelle croissante.

L'étude devrait s'attacher ainsi à mettre en exergue :

- les ressources disponibles et les tendances observées dans les différentes grandes régions mondiales en distinguant le cas des zones sèches,
- la montée observée et annoncée des problèmes de pénuries d'eau en tenant compte des projections démographiques et des impacts possibles du changement climatique,
- l'importance de la ressource disponible et non mobilisée dans les pays à ressources abondantes.

L'étude pourrait être l'occasion d'interroger la pertinence pour la sécurité alimentaire des 3 seuils de Falkenmark (tension, pauvreté et pénurie en eau).

3. Les problèmes de non durabilité à prendre en considération

La demande du CSA fait mention de la question de la durabilité des systèmes irrigués, de salinisation de la terre et de la dégradation de la qualité des eaux souterraines. L'orientation proposée pour l'étude du HLPE fait seulement mention du problème de qualité de l'eau.

Nos analyses nous conduisent de notre côté à souligner l'importance décisive des problèmes de :

- surexploitation de nombreux aquifères. La part d'eau prélevée que l'on peut qualifier de « non durable » car correspondant à une surexploitation des nappes renouvelables ou/et à l'exploitation des nappes fossiles est très importante dans nombre de pays (elle peut représenter plus 30% du total des prélèvements en eau), ce qui conduit à des rabattements continus de nombreuses nappes, à des pertes d'investissements et de productions, à une croissance des inégalités sociales et des risques d'instabilités et de migrations. L'étude devrait s'attacher à en montrer l'importance croissante et à interroger les évolutions nécessaires de politiques pour assurer une sécurité hydrique et alimentaire à long terme dans ces régions critiques.
- érosion hydrique, mauvaise conservation des eaux et des sols, dégradation et perte de vitalité des sols, pauvreté rurale dans les zones marginales et envasement très rapide des retenues des barrages. L'eau est un facteur fondamental de la production en pluvial comme en irrigué et les problèmes de non durabilité des systèmes nécessitent d'être appréhendés de l'amont à l'aval et dans leur interdépendance. Dans de nombreux pays pauvres en eau, la priorité de politique a été portée depuis 50 ans sur le seul développement des grands périmètres irrigués sans se préoccuper suffisamment de l'amélioration des systèmes pluviaux situés en amont des barrages pour les rendre à la fois plus durables et productifs. L'étude devrait s'attacher à montrer l'importance croissante de ces problèmes de non durabilité et les déséquilibres de développement entre amont et aval ainsi qu'interroger la question des politiques publiques passées et de leur évolution possible pour un développement plus durable, plus inclusif et plus territorialement équilibré.
- perte de terres, et notamment de terres équipées pour l'irrigation du fait de l'artificialisation des sols. Ces pertes sont très importantes (300.000 ha de terres équipées pour l'irrigation ont par exemple été perdus en France en seulement 10 ans) et elles représentent pour une bonne part un véritable gaspillage (car elles sont une conséquence de l'étalement urbain). Elles concernent des terres de très haute qualité et dont la perte doit être compensées par des mises en cultures de terres souvent beaucoup moins productives, avec des impacts importants en termes d'émissions de gaz à effet de serre et

de biodiversité. Les gaspillages à considérer ne se limitent donc pas aux gaspillages en eau et en aliments dans toute la chaîne alimentaire. La question du gaspillages de terres, notamment des terres irriguées, devrait donc être intégrée dans l'analyse.

- La question des sécheresses et des inondations.

Il serait par conséquent bon que l'étude permette de mieux faire ressortir :

- l'importance relative et globale des différentes « non durabilités » observées (surexploitation de l'eau, salinisation, érosion, engorgement des retenues des barrages, sécheresses et inondations, pertes de terres par artificialisation des sols, problèmes de qualité d'eau...) sur la montée de l'insécurité alimentaire aux niveaux global, régional, national et local ;
- les tendances constatées,
- le déficit de données et la nécessité d'y remédier,

et d'interroger la capacité collective des acteurs et politiques à apporter des réponses permettant de réduire et de prévenir les déséquilibres, les non durabilités et les risques d'impasses identifiés.

4. Les services environnementaux produits par l'agriculture et la question des paiements pour services environnementaux (PSE)

Les orientations proposées pour l'étude ne font mention ni des services environnementaux que l'agriculture peut produire ni des paiements pour services environnementaux.

Pourtant l'agriculture peut produire d'importants services environnementaux comme :

- la bonne infiltration de l'eau en montagne pour « produire » de l'eau en aval et réduire les risques d'inondations,
- la possibilité de réduire les prélèvements et la consommation d'eau pour libérer de la ressource pour d'autres usages,
- la « production » d'eau potable à un coût réduit pour les collectivités situées en aval.

L'étude pourrait donc gagner à questionner la portée possible de politiques de paiements pour services environnementaux (PSE) pour améliorer la gestion de l'eau et la sécurité alimentaire. La question peut se poser notamment dans des montagnes souffrant de pauvreté rurale et de mauvaise conservation des eaux et des sols ou de déprise, et où des PSE pourraient contribuer à la fois à restaurer les systèmes, réduire la pauvreté rurale, améliorer l'accès à l'alimentation de populations marginalisées, créer des emplois, installer des jeunes producteurs sans terre et maintenir les nécessaires équilibres urbain/rural, tout en produisant des services environnementaux très importants pour l'aval. Des politiques de PSE pourraient aussi donner l'occasion de mobiliser des financements innovants au service de la gestion de l'eau et de la sécurité alimentaire.

Alors que des politiques de transferts monétaires directs aux familles nécessiteuses, accompagnées de conditionnalités sociales (accès des enfants à l'éducation et aux services de santé) se sont mises en place dans plusieurs pays d'Amérique latine avec un certain succès, la question de l'intérêt potentiel de transferts monétaires directs avec conditionnalité environnementales pour la bonne restauration des systèmes dégradés et la bonne conservation de

l'eau et des sols, mériterait à notre avis d'être posée, notamment dans les régions soumises à de graves problèmes d'érosion et de désertification.

L'étude pourrait aussi s'intéresser aux impacts possible des politiques de subvention à la consommation des produits énergétiques (gaz, électricité, pétrole) et alimentaires compte tenu de coûts qui deviennent budgétairement insoutenables dans plusieurs pays (ils peuvent dépasser 5% du PIB) et d'externalités sur la ressource en eau qui peuvent être très négatives (encouragement de fait à la surexploitation).

5. La question du changement climatique

La proposition a bien intégré dans sa partie 3 la question du changement climatique et de ses impacts possibles sur la disponibilité en eau, sur le stockage, sur les innovations techniques et institutionnelles pour la conservation et la gestion durable de l'eau et sur la question de la résilience des systèmes. L'accent devrait à notre avis être également porté sur la croissance des besoins en eau de l'agriculture du fait du réchauffement climatique et sur la question de l'extension de l'irrigation comme outil d'adaptation dans des zones d'agriculture pluviale qui vont être touchées par le stress hydrique.

6. Les concepts d' « efficacité », d' « empreinte eau » et d' « eau virtuelle » et le triple défi de la « productivité », de la « durabilité » et de l' « équité »

La proposition met beaucoup l'accent sur les questions ou concepts d' « efficacité », d' « empreinte eau » et d' « eau virtuelle ». • S'agissant d'eau virtuelle, l'étude propose à juste titre d'analyser les risques et opportunités associés à l'extension du commerce international et de produire une analyse critique de ce concept. Elle devrait s'attacher à produire également une analyse critique des concepts d' « efficacité » et d' « empreinte eau », tant des idées reçues et peu fondées sont souvent véhiculées à ce sujet.

- L'eau contrairement à l'énergie fossile est une ressource indestructible et elle ne transporte pas à longue distance. En outre les situations sont considérablement différentes selon les territoires et les « pertes » n'en sont souvent pas. De nombreux cas peuvent montrer par exemple qu'il peut être très coûteux de réduire les prélèvements d'eau ("amélioration de l'efficacité"), ... mais que cette dépense n'est pas justifiée si l'eau "gaspillée" ne fait défaut à personne, et ne peut être utilisée, par exemple, pour étendre les surfaces irriguées à partir de cette ressource. D'où l'ineptie de mots d'ordre du style : on réduit partout de 25 % les autorisations de prélèvement. Un point intéressant proposé par l'étude est de réfléchir à la question de l'efficacité des différents systèmes alimentaires et pas seulement des seuls systèmes agricoles.
- Quant à la notion d'empreinte eau, elle a une valeur évidemment toute relative selon les modes de production et les contextes (cf cas de la production de viande à l'herbe en montagne si on la compare à une production sur système maïs/soja).

Si l'étude met bien en avant la question de l' « équité », elle ne met pas à notre avis assez en relief la double question de la « productivité » (des terres et de l'eau) et de la « durabilité » (des

ressources et des milieux) ; alors que l'atteinte de l'objectif de sécurité alimentaire nécessite fondamentalement des progrès décisifs et conjoints dans ces 3 directions. L'efficacité n'est d'ailleurs qu'un moyen parmi beaucoup d'autres d'une plus grande productivité et durabilité ; et il serait bon d'en montrer les limites. Dans certains cas, les gains d'efficacité se sont par exemple accompagnés d'une extension des surfaces irriguées ce qui ne pouvait permettre une réduction de la surexploitation.

Les exemples de solution documentés montrent que les outils à mobiliser pour accroître la productivité, la durabilité et l'équité peuvent être très divers et qu'il convient en général de réussir à combiner des actions visant à la fois l'« offre » (stockage y compris stockage dans les nappes, transferts, réutilisations, désalinisation...) et la « demande » (promotion d'agricultures à double ou triple performance /intensification écologique / agro-écologie, gestion des nappes en biens communs, efficacité de l'eau d'irrigation, interdiction des extensions, réduction des pertes et gaspillages en aliments, terres et eau,...).

7. La gouvernance de l'eau : allocations, arbitrages, accaparements, acteurs et droits

L'étude se propose d'examiner les impacts de l'accaparement en eau sur la sécurité alimentaire et nutritionnelle. C'est un point intéressant et encore peu documenté. L'analyse ne devrait pas se limiter aux seuls investissements étrangers à grande échelle mais porter également sur les impacts possibles d'investissements plus locaux et sur la question des politiques publiques qui peuvent parfois les encourager. Certaines oasis traditionnelles qui faisaient vivre des populations nombreuses ont été par exemple totalement dégradées par des accaparements résultant d'investissements plus locaux au profit de systèmes de production plus « modernes » mais à très faible contenu en emplois.

L'analyse des impacts des décisions d'allocation des ressources en eau en priorité sur les villes et les secteurs industriels et énergétiques, en termes d'accès et de qualité de l'eau pour la consommation humaine et pour la production agricole et agro-alimentaire, constitue à notre avis un autre point fort de la proposition. Il conviendrait d'élargir l'analyse à la primauté donnée dans certains pays (c'est le cas par exemple dans plusieurs pays d'Europe) à la demande en eau pour la nature par rapport à la demande agricole.

La question fondamentale des droits, des responsabilités et de la gouvernance locale de l'eau est aussi bien mise en avant. De nombreux exemples alertent sur les risques de remise en cause de droits et leurs conséquences possibles sur la sécurité alimentaire et/ou montrent les bénéfices de gouvernances

locales pour la gestion des biens communs et l'importance de l'intermédiation. L'étude gagnerait à bien mettre en évidence les risques possibles, les conditions de succès et les obstacles à surmonter pour une gestion plus durable, efficace et équitable de la ressource intégrant l'impératif de la sécurité alimentaire.

La question des échelles emboîtées des territoires à considérer gagnerait à être davantage mise en avant et interrogée ainsi que le rôle respectif des acteurs (dont l'Etat et les communautés rurales) pour renforcer la productivité, la durabilité et l'équité, y compris l'équité amont/aval.

8. La nécessité de « changements de paradigmes » à tous les niveaux et la question des politiques publiques

L'étude se propose de réunir l'information disponible sur la manière dont les pays et les régions prennent en compte la gestion de l'eau pour la sécurité alimentaire à travers leurs politiques et institutions. C'est important car on a pu noter le décalage entre l'ampleur des défis à relever et l'insuffisance des réponses actuellement apportées, y compris en Europe.

Les analyses ne devraient cependant pas se limiter aux seules politiques de l'eau et interroger aussi la question du « policy mix ». Le Forum mondial a d'ailleurs insisté dans ses conclusions sur la nécessité d'une plus grande convergence entre, d'une part, les politiques de l'eau et, d'autre part, les politiques de sécurité alimentaire, dont les politiques agricoles et rurales. Et le rapport du CGAAER a proposé 7 grands axes de progrès qui justifieraient de progrès de politiques dans de nombreux domaines.

Les analyses développées pour le Forum de l'eau et à l'occasion du séminaire SESAME ont aussi convergé pour montrer la nécessité de véritables « changements de paradigmes » dans nos visions du progrès, dans l'agriculture, dans la gouvernance des biens communs et dans les politiques. On peut citer par exemple à ce sujet les analyses de l'ICARDA pour le cas des zones sèches. Il pourrait être bon que l'étude HLPE interroge à son tour la nécessité d'un tel changement de paradigme et son contenu multi-dimensionnel possible avec ses répercussions possibles en termes de politiques publiques.

Une des évolutions qui paraît notamment nécessaire est le progrès de la petite agriculture, premier gestionnaire de l'eau agricole, ainsi que la transformation vers des systèmes agricoles à la fois plus productifs et plus « durables », ce qui pose la question du nécessaire renouveau de politiques agricoles. Des politiques qui vont devoir aider l'agriculture familiale à s'engager dans de nouvelles dynamiques entrepreneuriales et territoriales, condition de la bonne gestion de l'eau et de la sécurité alimentaire, et des politiques qui vont devoir mieux prendre en compte la dimension territoriale et la durabilité. De nouvelles visions plus territorialisées et prenant mieux en compte les enjeux emboîtés de l'eau, du climat et de la sécurité alimentaire pourraient gagner à être développées à des échelles pas seulement locales et nationales mais aussi sub-nationales et macro-régionales (bassins, régions...).

9. La structuration et le contenu de l'étude

La partie 1 a pour objectif de donner les grands chiffres intéressants l'eau et la sécurité alimentaire et de faire ressortir les tendances observées. Les 3 sous-parties proposées sont : i) l'accès à l'eau potable et à l'assainissement, ii) l'évolution des prélèvements en eau pour l'irrigation et pour les autres usages et les consommations associées, iii) les statistiques sur la qualité de l'eau. Ceci paraît en décalage avec les objectifs de l'étude.

Au delà des chiffres globaux sur les ressources et les utilisations (y compris l'eau verte qui ne doit pas être oubliée), l'accent devrait être mis à notre avis principalement sur les points suivants :

- les différences de situations et les tendances observées dans les grandes régions du monde : ressources conventionnelles potentielles disponibles, part des ressources prélevées, capacité de stockage/écoulements ; répartition pluvial/irrigué, productivité de l'eau (en irrigué et en pluvial) en quantité, revenus et emplois, ...

- les impacts régionaux annoncés du changement climatique sur la ressource en eau
- la montée observée et annoncée des pénuries d'eau dans les régions à ressources limitées et à forte croissance démographique
- les chiffres disponibles permettant de montrer les grands problèmes et tendances de non durabilité observés : quantité d'eau non durable prélevée (et part dans le total prélevé), salinisation, pertes de terres par érosion, engorgement des retenues des barrages, perte de terres irriguées par artificialisation des sols, impacts des sécheresses et des inondations (coûts humains et économiques, impacts sur la production et sur la sécurité alimentaire), problèmes de qualité.
- la problématique globale des zones sèches face au défi du changement global.

Les 3 parties 2, 3 et 4 pourraient être améliorées sur plusieurs points comme signalé dans les § précédents. Leur structuration pourrait par ailleurs être revue car elle paraît assez confuse. La partie 3 notamment apparaît comme une succession de points dont on ne voit pas la cohérence d'ensemble et la justification.

Devant aboutir à des recommandations de politiques, l'étude pourrait à notre avis gagner à :

- bien mettre en avant les défis à relever aux horizons 2025/2050 en liens avec la gestion de l'eau qui sont à la fois ceux de la productivité (production, revenus, emplois) et de l'équilibre offre/demande, de la durabilité des systèmes et de l'équité.
- questionner la capacité des acteurs et des politiques à relever ces défis
- développer une analyse critique des concepts mis en avant par les uns ou par les autres, et des conditions fondamentales de progrès,
- ouvrir des pistes sur les leviers d'action à mobiliser et sur les évolutions de politiques et d'institutions qui pourraient être proposées pour relever le défi croisé de l'eau et de la sécurité alimentaire.

Comme le 6^{ème} Forum mondial de l'eau a permis de mettre en avant de nombreux exemples de solutions et de problèmes, l'étude pourrait à notre avis gagner à en faire une analyse critique afin de faire ressortir les faiblesses observées et leurs causes, d'apporter un regard critique sur les politiques mises en œuvre en s'appuyant sur des cas très concrets, et d'interroger les leviers d'action et les conditions de généralisation des progrès.