

**DRAFT**

**Background Note for the Thematic Priority**  
***‘Contribute to Food Security by Optimal Use of Water’***

**(World Water Forum 6)**

Thematic Process Core Group

*(updated based on the comments received up to May 10, 2011)*

**Rome, Italy**

**May 15, 2011**

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More investments in water infrastructure and in agricultural water management solutions

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Food security strategies at national level have to take into consideration the socioeconomic relationship between urban and rural spaces and between agricultural and non-agricultural activities

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# Background Note for the Thematic Priority 'Contribute to Food Security by Optimal Use of Water'

(World Water Forum 6)

(updated based on the comments received up to May 10, 2011)

## INTRODUCTION

This Background Note provides a framework for structuring dialogs, debates and discussions on the thematic priority 'Contribute to Food Security by Optimal Use of Water'. Based on the fundamentals of 'Food Security', the note develops a line of reasoning that will help conduct the analysis and related discussions along a logical pathway from water-related dimensions (*issues*), relevant to the *theme*, to further elaborations of possible *recommendations*. The *recommendations* addressing these issues will eventually be presented under the form of *indicators* and associated reasonable *targets*. Finally the Background Note proposes measures/interventions/conditions that could be seen as *solutions* to the achievement of the targets. Major actors that could play important roles in the implementation of the targets and solutions will be identified as well.

This process depicted in Figure 1 resembles the steps formulated by the International Forum Committee (IFC), as reported in their documents (Figure 1).

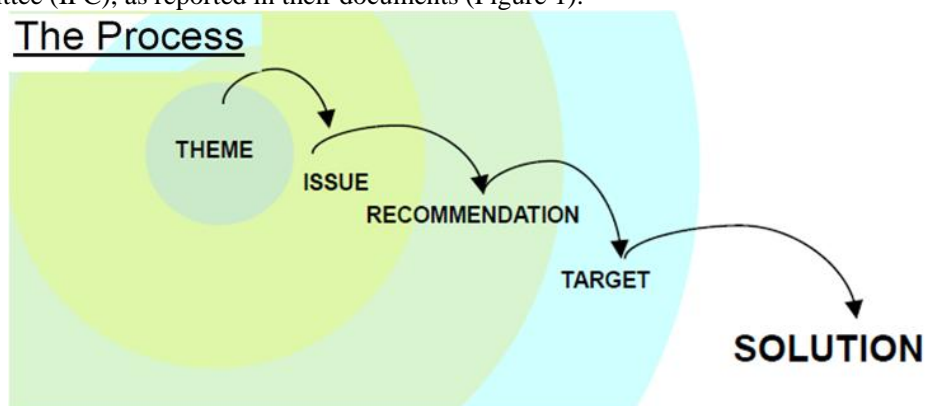


Figure 1 – Schematic representation of the process involved in the development of 'solutions' for the World Water Forum 6 (redrawn from Braga, 2010)

When entering the complexity of the theme of *Optimal Use of Water for Food Security*, though, the apparently straightforward process depicted in Figure 1 requires further specification. However, before entering into this it is worthwhile to refer to the 5<sup>th</sup> World Water Forum where two topics were devoted to Water and Food, being *Topic 2.3: Water and food for ending poverty and hunger* and *Topic 2.4: Optimizing multiple uses of water systems e.g. water supply and irrigation*. This Background Note elaborates on the conclusions and recommendations of these two Topics, the developments since then and the expectations for the short and medium term future.

First, as stated by the informal Stakeholder Consultations in Stockholm and Yogyakarta, there is a 'regionalization of the optimal use of water for food security problems', i.e. the spatial differentiation of the food and water crisis and of its underlying causes. This clearly indicates that regional variations will have to be taken into account (Annex I).

Second, it is important to consider that certain core issues are contentious and often reflect competing interests, competing analysis of data and competing perceptions of relative urgency. As mentioned in Stockholm, this concerns potential competitions/conflicts between rural and urban sectors, between agriculture (the highest consumer of water) and various other sectors, and competing

priorities related to the urgency of feeding a rapidly expanding population and the importance of addressing the possible impacts of climate change. But it also relates to contention over other issues, e.g. to the underlying economic models, especially with respect to small-holder market versus commercial interests, as has been stressed in Yogyakarta. This suggests that the prevailing conflicts and contradictions would have to be highlighted or, as has been stated in Stockholm that ‘fundamental questions’ are formulated as first steps. Because of this contention and competition it needs to be demonstrated that stakeholders are engaged broadly and participate widely to promote that the fundamental questions addressed are representative and fairly articulated.

Third, it is widely agreed that many issues related to the optimal use of water for food security are highly interconnected. The inter-linkages between optimal use of water for food security and other themes such as ‘cultural asset’, ‘energy’, ‘trade’, ‘ecosystem’, ‘food quality/safety and diets’, ‘aquaculture’, etc. have been indicated by the Stockholm consultation. Moreover, the insight that ‘the water crisis is mostly a crisis of governance’, as stated by the Global Water Partnership (GWP), has drawn attention to the fact that technical and organizational solutions need to be in line with prevailing and realistically achievable governance capacities. Therefore, it will not be sufficient to build consensus with respect to specific targets to be pursued (e.g. increased water productivity). These ‘pathways’ guiding us towards such targets need to be scrutinized, as mentioned in one of the outcomes of the Stockholm consultation. In this context, special consideration needs to be given to issues of governance.

In this version the comments made during the 2<sup>nd</sup> stakeholders meeting of WWF6, 17 and 18 January 2011, Paris, the ICID hosted Task Force meeting on WWF6 in Orleans, France on March 14, and the decisions of the International Forum Committee as presented in its letter with attachments to the coordinator of April 15, 2011 as well as the written comments that have been received up to May 10 March, 2011 have been accommodated. These comments include the comments that were received on a survey that was widely disseminated and resulted in about 350 responses.

This document is thus an updated version, primarily based on the comments and recommendations as outlined above. Together with the eight Targets that have been approved as well (Annex II) it will create the basis for the further development of the Thematic Priority *Contribute to Food Security by Optimal Use of Water*. The coming period the Thematic Process Core Group in close cooperation with the eight Target and Solution Groups will have to refine the important issues, targets and potential solutions, finally resulting on a good document on the Thematic Priority and interesting and useful sessions per Target and related potential solutions during the 6<sup>th</sup> World Water Forum. The Terms of Reference Thematic Process Core Group are shown in Annex III. For the Target and Solutions Groups they are shown in Annex IV.

With this we enter in the next step of the preparations. However, the dialog/debate will continue on the web-platform, during various events and meetings in order to outreach as much as reasonably possible stakeholders resulting. Comments and recommendations are most welcome.

## FOOD SECURITY CHALLENGES

### Definitions

It may be useful to clarify key definitions and dimensions of Food Security.

*Food Security*: **‘Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’**. Note that the concept of food security is meant to include nutrition security. This widely accepted definition (outcome of the World Food Summit of Rome, 1996) considers four dimensions of food security:

1. *Food availability*: The availability of **sufficient quantities** of food of **appropriate qualities**, supplied through **domestic production** or **imports** (including food aid). Food **availability** addresses the ‘supply side’ of food security and is determined by the level of food production, stock levels and net trade. Food production, though, is only one of several means that people have to acquire the food that they need.

2. *Food access*: Access by individuals to **adequate resources (entitlements)** to acquire appropriate foods for a nutritious diet. Entitlements are defined as the set of all those commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which she lives (including traditional rights - e.g. access to common resources). Concerns about insufficient food **access** have resulted in a greater policy focus on incomes and expenditure in achieving food security objectives. This has brought food security closer to the poverty reduction agenda. Best management and use of water in vulnerable areas can improve incomes (and hence food security and poverty reduction) in three ways: by improving productivity and lowering loads operating and earnings quality and environmental services.
3. *Meeting nutritional requirements (utilization)*: Utilization of food through adequate diet, clean water, sanitation, and health care, to reach a state of nutritional well-being for which all physiological needs are met. This brings out the **importance of non-food inputs** in food security. It is not enough that someone is getting what appears to be an adequate quantity of food if that person is unable to make use of the food because he or she is often falling sick. The health status of people determines the **utilization** of food. Food security was traditionally perceived as consuming sufficient protein and energy (food quantity). The importance of micro-nutrients for a balanced and nutritious diet (food quality) is now well appreciated. On the other hand it is of importance to define malnutrition. Malnutrition is the condition that results from taking an unbalanced diet in which certain nutrients are lacking, in excess (too high an intake), or in the wrong proportions.
4. *Stability*: To be food secure a population, household, or individual must have **access to adequate food at all times**. They should not be at risk of losing access to food as a consequence of a shock (e.g. an economic or climatic crisis), or cyclically (e.g. during a particular period of the year – seasonal food insecurity). The concept of **stability** can therefore **refer to both the availability and access** dimensions of food security. The **stability** dimension of food security emphasizes the importance of reducing the risk of adverse effects on availability, access or utilization, including adverse weather conditions, political instability, economic factors (e.g., soaring food prices and prices volatility), or ecological deterioration and the interactions between these various processes.

The condition of **food insecurity** may assume different degrees of **duration** and **severity**. Concerning the **duration**, we may have three types of food insecurity: **chronic** (long-term; as result of extended period of poverty, lack of assets and inadequate access to productive or financial resources); **transitory** (short-term; relatively unpredictable; typical of droughts and floods occurrences); and **cyclical** (generally seasonal, intermediate between the previous types). Concerning the **severity**, we may have two types of food insecurity: **acute** (threatening and that can require emergency interventions; it is indicated as *humanitarian emergency*); **famine** (the most extreme situation, with substantial loss of lives; it is indicated as *humanitarian catastrophe*). Overall, the inter-temporal dimension of food security needs to be considered.

Note that **poverty** is closely related to food insecurity and **hunger** being both part of a vicious cycle: while poverty is undoubtedly a cause of hunger, lack of adequate and proper nutrition is itself an underlying cause of poverty (definition: 'Poverty encompasses different dimensions of deprivation that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work' - Organisation for Economic Co-operation and Development (OECD), *year*).

Several conditions are necessary to ensure food security. Better protection and management of water resources used by both irrigated and rainfed agriculture is a key condition. In the rapidly urbanizing world, there is a need for societies to raise awareness of rural challenges and to give farmers and those involved in the food industry the recognition and the means to ensure food security, to innovate and to reconcile agricultural progress and sustainable management of natural resources, particularly water

## SUPPLY: FEEDING 9 BILLION PEOPLE IN 2050 WITHOUT ADDITIONAL WATER

### Key issues

By 2050 the world's population is expected to reach 9.1 billion, a 50% increase compared to 2000. Nearly all of this population increase will occur in emerging and least developed countries (Figure 2)<sup>1</sup>. Urbanization will continue at an accelerated pace, and about 70% of the world's population will be urban (Figure 2). Although present global food production is still sufficient to feed the world's population, malnutrition affects large numbers of people and is even increasing. In this perspective, food prices play a significant role.

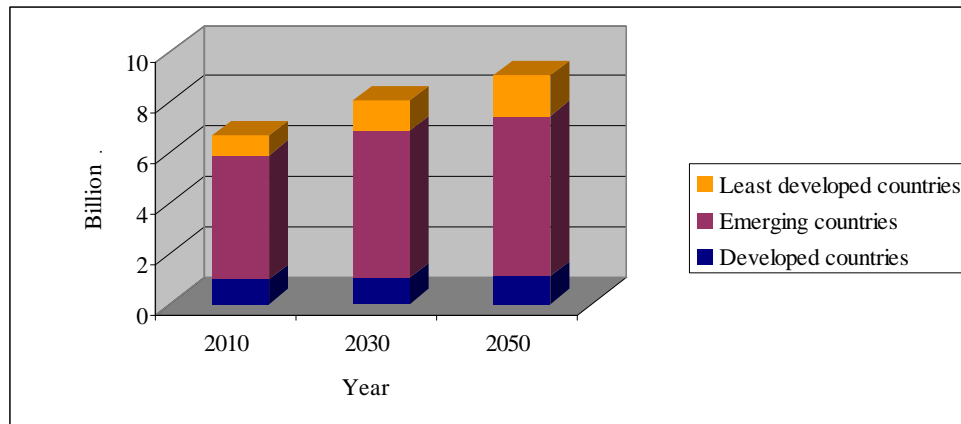


Figure 2 – Population and population growth in the least developed, emerging and developed countries (after Schultz et al., 2009 and UNDP Population Reference Bureau)

Income levels will be many multiples of what they are now in many countries, implying changes in dietary habits to higher value and input intensive, non vegetarian and processed foods. In order to feed this larger, more urban and partially richer population, it is estimated that food production (net of food used for bio-fuels) must increase by 70 - 110% at global level and at least doubling in the emerging and least developed countries.<sup>2</sup> The estimate of 70% for future food requirement assumes no changes in dietary or efficiency/waste adjustment of food demand.

If the required increase is compared with the speed of increase over the past period, it can be observed that the speed of increasing food production has to be significantly faster to cope with the expected need (Schultz et al., 2009). There is a common understanding that 80 - 90% of the necessary production increases would have to come from increases in yields and cropping intensity and only 10 - 20% from expansion of arable land. It will therefore be of importance to analyse which part of this increase can be achieved by improvements or expansion of rainfed agriculture with, or without a drainage system and which part by irrigated agriculture, either without, or with a drainage system for wet periods, or groundwater table and/or salinity control. This increase in food production will have to be achieved at affordable costs and at affordable prices, especially for the urban poor. In light of this it is of interest that most increase in arable land has been in irrigation in the past (Figure 3). With respect to this it will also be of importance to indicate to what extent government support and institutional reforms will be needed to achieve this, especially in the emerging and least developed countries.

Agricultural production remains sensitive to a wide range of influencing factors. Among these factors are developments in the sector, introduction of innovations in practice, market fluctuations,

<sup>1</sup> *Developed countries.* Most of the countries in Western and Central Europe, North America and some countries in Central and South America, the larger countries in Oceania and some countries in Asia;

*Emerging countries.* Most of the Eastern European countries (including Russia), most countries in Central and South America, most countries in Asia (including China, India and Indonesia), and several countries in Africa;

*Least developed countries.* Most countries in Africa, several countries in Asia, 1 country in Central America and most of the smaller countries in Oceania.

<sup>2</sup> Note: there is a certain range in the forecasts. It is therefore worthwhile to analyze different forecasts and the considerations on which these forecasts are based.

production conditions, flooding and in case of rainfed agriculture inter-annual variability of climate, especially the occurrence of drought. Given the wide range in the projections of changes in climate and a possible increase in climate variability, increases in the frequency, severity, or duration of extreme climatic events and environmental shifts may have significant impacts on the production of rainfed food crops. Thus, human beings and the agricultural practices and strategies they utilize must, as they have for millennia, adapt to changes in climate and natural habitats while profoundly seeking to maintain biodiversity and securing fruitful environments for succeeding generations. Related to these influential factors a special item that so far has not received the attention that it deserves is the need for sufficient animal feed, especially in arid and semi arid regions. More attention needs to be paid to this aspect, while it is generally an important aspect in the livelihood of small-holder farmers.

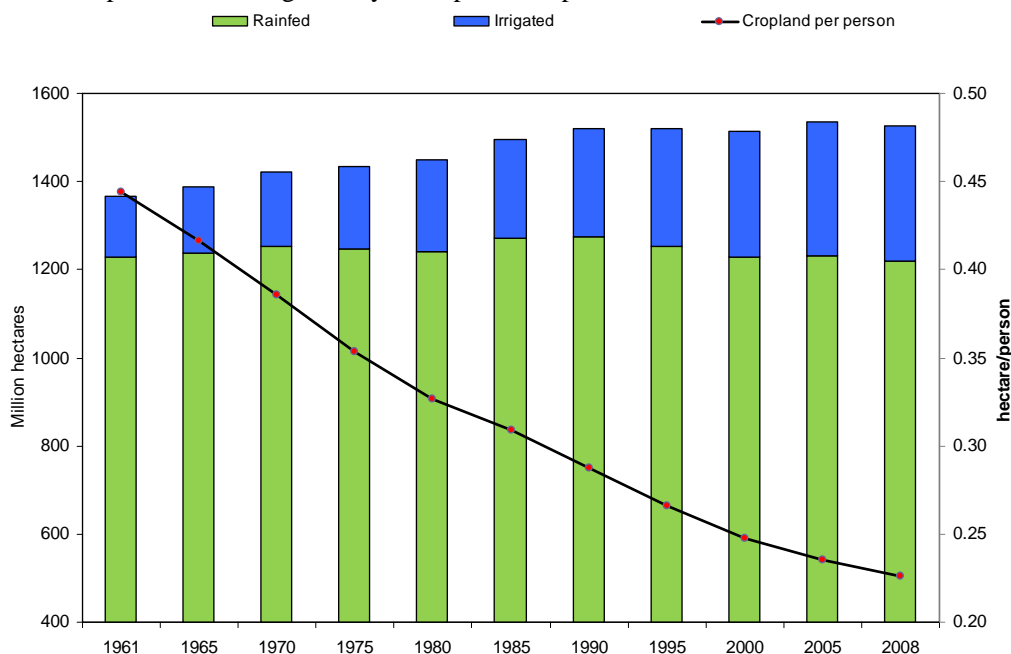


Figure 3 – Evolution of cropland surface area between 1961 and 2008 (reference ?).

There is a significant gap in crop productivity among the different Regions of the World (example of maize productivity reported in Figure 4). There are several reasons why yield gaps exist. Farmers often do not have sufficient economic means or incentives to adopt yield enhancing seeds or cropping techniques, they may lack access to information, extension services, technical skills and sometimes available technologies have not been adapted to local conditions. Poor infrastructure, weak institutions and discouraging farm policies can also create obstacles to the adoption of improved technologies at farm-level. Solutions lie with public sector investments in infrastructure and institutions, and sound policies to stimulate adoption of technologies that reduce costs as well as improving productivity, thus increasing agricultural incomes. Changes in crop management techniques can also help closing yield gaps. Plant breeding plays an important role in closing yield gaps by adapting varieties to local conditions and by making them more resilient to biotic (e.g. insects, diseases, viruses) and abiotic stresses (e.g. droughts, overabundant moisture, depleted soils, flooding). Agricultural strategies, such as the development of bio-fuels in some areas may be a threat to water and food security. It is therefore appropriate to match the dynamic economic and territorial issues at relevant geographical scales.

### Drivers of change in food supply

Global prices, availability of energy for agriculture, the policy response to the recent financial and food price crises, increasing demand for bio-fuel feedstocks, and especially in case of rainfed agriculture possible impacts of climate change are among the major uncertainties the world currently faces in preparing responses to current and future challenges.

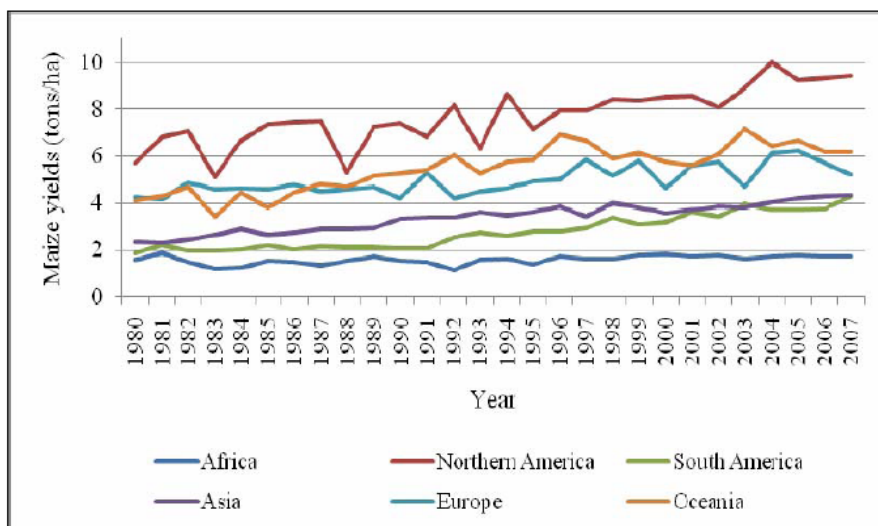


Figure 4 - Progress in maize yields, 1980 – 2007 (Food and Agriculture Organisation (FAO), year)

Given the suite of currently recognized challenges to achieving food security it is important to develop strategies to improve the resilience of agriculture to meet the world’s needs. Especially in case of rainfed agriculture climate change may have a significant impact on agricultural production, a goal would have to be to develop strategies to improve the resilience of agriculture to these changes. In Africa, Asia and Latin America, for instance, yields of rainfed agriculture could decline by between 20 and 40% if no effective adaptation measures are taken. Even if climate change is expected to increase crop productivity of rainfed agriculture in certain areas (thanks to an extended growing season), it is generally agreed among the research community that climate variability and the frequency of extreme weather events will increase even in the near term in all regions. Also an increasing demand for bio-fuel feedstock may put additional pressures on global agricultural production. More productive and resilient agriculture requires higher effectiveness with respect to food security goals and increased efficiency, substantial increases in irrigated agriculture, as well as in the use of natural resources and inputs for production.

*Energy.* As countries further develop, the need to reduce the burden of increasing energy demand on the environment and lessen climate changes effects through increased energy diversification and energy efficiency is becoming a larger global challenge. Within the energy context, agriculture plays a double role: on the one hand, agriculture will have to supply additional food and most of this increase will result from productivity increase, and therefore more energy will be required for this; on the other hand, agriculture can also be a potential supplier of energy through bio-energy sources. Fossil fuels can no longer be the only source for energy to increase productivity but energy sources have to be considerably diversified so as to allow for further agriculture intensification. This is because, as fossil fuel sources decrease, prices increase; which in turn drive input prices up, consequently increases agriculture production costs and bears a risk on food security.

### Implications of increasing food supply on water and ecosystems

*Water.* Agriculture already accounts for about 70% (2,850 km<sup>3</sup> per year) of the freshwater withdrawals in the world and is perceived as the main factor behind the increasing global scarcity of freshwater. In addition rainfed agriculture uses 6,400 km<sup>3</sup> per year. Water use has been growing globally at more than twice the rate of population increase in the last century, and an increasing number of regions are reaching the limit at which reliable water services can be delivered. Essentially, demographic growth and economic development are putting unprecedented pressure on renewable, but finite, water resources, particularly in arid regions. By 2025, 1.8 billion people are expected to be living in countries or regions with less than 500 m<sup>3</sup> of renewable water per year per capita, and two-thirds of the world population could be under ‘stress’ conditions (between 500 and 1000 m<sup>3</sup> per year per capita). The situation will be exacerbated as the demands of rapidly growing urban areas place increased

pressure on the quality and quantity of local water resources. With respect to this an important challenge will be how to lessen pressure on agricultural water by bringing in low quality water and reuse of waste water in (urban) agriculture and aquaculture. In addition, environmental services and ecosystem functions are now being given explicit water allocations rather than being treated as residual users. Agriculture in its relationship with water can also deliver environmental services important for food security. If further food production is expected then a proportional consumption of water would have to be associated on a limited opportunity for land expansion. Increasing input use efficiencies in agricultural production will be essential as natural resources are getting scarcer, and prices of non-renewable resources like fossil fuels, nitrogen, and phosphorus are expected to increase over the next decades.

*Ecosystems and biodiversity*, which many recognize as essential resource for agriculture intensification and ‘smart’ food production, is threatened by urbanization, deforestation, pollution and the conversion of wetlands. As a result of agricultural modernization, changes in diets and population density, humankind increasingly depends on a reduced amount of agricultural biological diversity for its food supplies. The gene pool in plant and animal genetic resources and in the natural ecosystems which breeders need as options for future selection is diminishing rapidly. A dozen species of animals provide 90% of the animal protein consumed globally and just four crop species provide half of plant-based calories in the human diet.

### RECOMMENDATIONS<sup>3</sup>

The way forward implies sustainable intensification, and therefore improved water governance, more water infrastructure, better adapted to local circumstances, prevention or reduction of over-exploitation (at present about 150 km<sup>3</sup> per year), pollution, desertification/erosion of river basins, transfer of land and water due to urbanisation, flooding and salinisation. Some of the recommendations are.

#### **Intensification of agricultural production to reduce yield gap. This implies to increase land and water productivity in all agricultural systems (mainly rainfed, rangeland and irrigated partially or fully)**

In most countries with agriculture-based economies, where rural population is more than 40% of total population and agriculture has a predominant economical, social and ecological role, increasing productivity to achieve food security is clearly a priority.

*Improving the productivity of small farms in poor rural and peri-urban communities* and in production based agriculture across the global economic spectrum may be the best and most sustainable avenue for reducing hunger by increasing the access to, quantity and variety of nutrition and improving the quality of locally available food. Investing in small farms also provides another important pillar in efforts to sustain equitable economic growth. If food demand is to be met in the future, increased outputs will have to come from intensified and more efficient use of limited stocks of land, water and genetic resources across the spectrum of holdings.

*Innovation. The suite of technological options available to producers needs to be as broad as possible*, ranging from new plant varieties and animal breeds better adapted to changing conditions; to farming systems with improved water- and labour-saving technologies; reduction of losses and waste; and natural resource management. New or tailored technologies will be needed to address the problem of rapidly increasing water scarcity, and also to reduce post-harvest losses. Addressing these challenges will require pushing the technology frontier outwards, while attempting to avoid potentially disastrous stress on marginal areas that in the past have provided significant ecological and environmental buffers. This could be achieved by developing and disseminating innovative technologies, farming and crop management techniques but also by making already existing technology available to small-holder farmers in emerging and least developed countries. These small-

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<sup>3</sup> The text in this section is to a large extent based on the recommendations from the High-Level Expert Forum on ‘How to feed the world in 2050’

holder farmers are one of the solutions to food security. In order to ensure a wide uptake of modern technologies, it is indispensable that resource-poor small-holder farmers are not bypassed by technological progress.

*Conservation agriculture (CA)* can improve crop yields and farm profitability, improve soil productivity and make agriculture more sustainable, providing greater resilience against drought and other stresses. Yields are less variable from year to year, while labour and fuel costs are lower. However, CA is knowledge intensive and location specific and will require sharply increased investments in research on suitable varieties, management practices, appropriate machinery, etc.

*Plant breeding techniques.* Plant breeding techniques, and particularly modern biotechnology, have aroused large public debates in the last decade. Technically speaking, modern biotechnology has the potential to speed up the development of improved crops, which may increase yields and/or decrease crop losses.

*Precision agriculture, with controlled inputs and integrated plant nutrient management* systems provide new tools for further improving efficiency. Fertilizer consumption is expected to rise especially in the emerging and to a certain extent in the least developed countries as well. Nitrogen represents 90% of fertilizer consumption. Fossil energy accounts for 70 - 80% of the cost of manufacturing nitrogen fertilizer. Because major efficiency gains in manufacturing nitrogen have already been made, it is likely that fertilizer prices will in the future rise in line with energy prices. Increasing the on-farm use of nitrogen and the supply of biologically fixed nitrogen are good options for efficiently using fertilizers. Integrated pest management (IPM) aims to minimize the amount of pesticides applied by farmers by using other control methods more effectively. Many countries (e.g. Niger, Mali, Jordan, India, Bangladesh, and Viet Nam) have introduced IPM and have experienced increased production accompanied by lower financial, environmental and human health costs.

*Agricultural research and development (R&D).* In low-income countries, agricultural R&D continues to be the most productive investment in support of the agricultural sector, followed by investments in education, infrastructure, and input credits. Investments in R&D have very high rates of return (between 30 and 75%) and long-term benefits. Greater priority has to be given to agricultural research, development and extension services in order to achieve the yield and productivity gains that are needed to feed the world in 2050.

### **More investments in water infrastructure and in agricultural water management solutions**

Addressing the yield challenge requires to improve water access and therefore increase water storages where needed as well as expanding irrigated areas and the wider use of management practices that will improve the efficiency of water use, e.g. water ‘harvesting’ techniques and conservation of soil moisture. In severe water scarce regions, the effort would have to focus on getting ‘more crop per drop’.

Most of the investment, both in primary agriculture and downstream sectors, will have to come from private sources, primarily farmers themselves purchasing implements and machinery, improving soil fertility, etc. Farmers will invest in agriculture only if their investments are profitable.

Private sector investment needs to be encouraged at all stages in the value chain - upstream of the farm, in seed and fertilizer production and distribution, and downstream in processing, marketing and distribution. Countries need to create a favourable investment climate and address issues such as lending policies to agriculture, risks and limitations on the ability of microfinance systems to bring about a step-change in production and productivity.

A strong and innovative rural financial system that allows the rural poor to have access to capital and their own savings, as well as insurance schemes, is clearly important in this context.

Small-holder farming needs to be integrated with the non-farm sector, both upstream and downstream the farm and be more able to adapt. Actions to lower barriers to the development of farm/non-farm linkages include addressing deficiencies in infrastructures (as they limit investment opportunities), improving agricultural technology (with a bearing for linkages backward and forward from farming), promoting farmer organizations (as organized farmers tend to be more proactive in forging linkages with e.g. agribusinesses). A major problem in designing policies and programs geared towards non-farm rural activities, is that those activities fall into an ‘institutional vacuum’ i.e. they are neither under the institutional mandate of the Ministry of Agriculture nor that of industry. This

institutional constraint has to be resolved before meaningful policies can be taken towards the rural non-farm sector (including specific knowledge and data on its composition and characteristics, factor intensity, etc.).

*Dissemination.* Agricultural extension programs are meant to ensure that information on new technologies, plant varieties and cultural practices reaches farmers. Spreading knowledge, skills and technology, as well as sharing best practices and successful know-how between south to south small-holder farmers are major challenges. In many countries, extension services have been cut in line with the reforms of public institutions, in others the knowledge base and extension services have been hard hit by HIV-AIDS.

Non governmental organisations (NGO) as well as private entrepreneurs may play an important facilitating role in developing linkages between agro-industry and farmers. This role may include organizing farmers or assisting NGOs or private enterprises to take on responsibilities previously discharged by states, providing credit, assisting with inputs, providing information on technology and ensuring that contract requirements are met. In this way, the public sector, NGOs, and private entrepreneurs are helping directly to create beneficial linkages between agro-industry and farmers, and indirectly creating other linkages between the farm and non-farm sectors'.

**Promote a sustainable and adaptive way to intensify agriculture production and invest in agricultural water, for small-holders. Particular efforts should be made in least developed country most vulnerable to changes.**

Global crises (financial, energy, soaring food prices, trade distortion and speculations, possible impacts of climate change, etc.) makes the least developed countries most vulnerable and exposed to high risk of food insecurity.

For food supply to be sustainable, action must be taken to arrest the destruction and degradation of the natural resource base. This requires investments to manage the resource base, improve technical production efficiency (yields) and develop practices that foster sustainable and intensified food production.

## **Access to food: food security in rural and urban contexts**

### *Key issues*

*Food security issues vary substantially between the rural and urban contexts and must be addressed differently.* Today's world population is evenly distributed between urban and rural people, and the trend is towards progressive urbanization of the world's population (Figure 5). The food security balance is skewed in favour of urban people: between 70 to 75% of the poor and hungry live in rural areas in the emerging and least developed countries. They include small-holders, landless labourers, traditional pastoralists, artisanal fishermen, and marginalized and vulnerable groups like refugees, indigenous peoples, and female-headed households. Agriculture is therefore at the heart of their livelihood strategies. In the countries with the highest incidence of undernourishment, agricultural employment is paramount. Moreover, worsening standards of living in rural areas drive desperate people to the cities, thereby exacerbating urban poverty while the reverse does not often happen. Hence, agricultural growth needs to play a central role in strategies to reduce hunger and poverty.

At the going rate of urbanization, urban population in the emerging and least developed countries has equalled rural population in 2007, and is projected to be 60% by 2030 (exactly the reverse situation of the 1960). Almost all of the population increase expected during 2000-2030 will be absorbed by the urban areas of the emerging and least developed countries, which will account for almost the entire increment in population growth. Within the group of developing regions, urbanization will be most pronounced in the emerging and least developed countries of Asia and sub-Saharan Africa.

With respect to actual farming it may be expected that the on-going urbanisation in the emerging and to a certain extent in the least developed countries will have its impact as well. In the developed world farming has gone in the past century through a significant up-scaling in agriculture (for example in the Netherlands from 5 ha/farmer at the beginning of the 20<sup>th</sup> century to 50 ha by the

end of the century). Similar processes can be observed in several emerging countries (where about 75% of the world's population is living) and to a certain extent as well in some of the least developed countries. In several others despite rapid urbanisation the agricultural population is not decreasing and may even continue to increase. In these countries small-holder agriculture will therefore retain an essential place. The overall consequence will be that farmers will have to produce for significantly more urban people. This will require an increase in farm sizes, or a transfer to higher value crops. It would be of importance to analyse such trends.

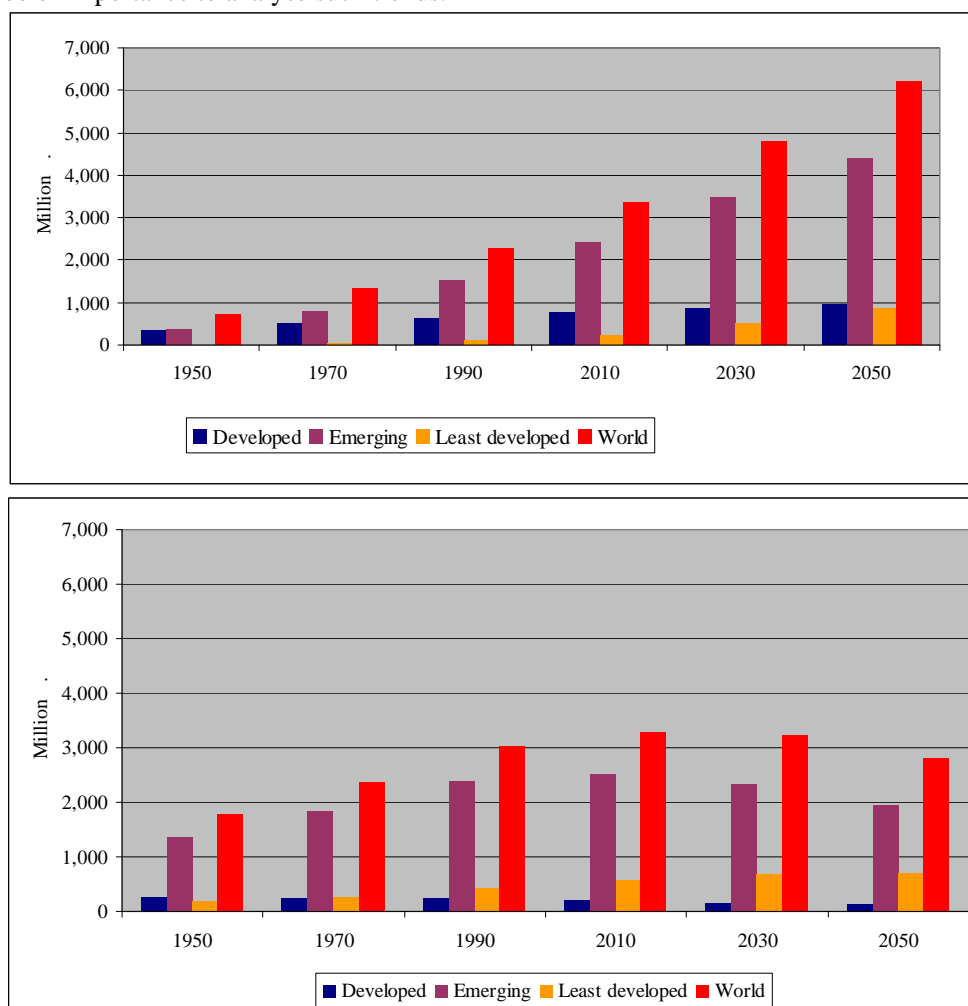


Figure 5 – Population dynamic for urban (above) and rural (below) population of developed, emerging and least developed countries and the whole world (after Schultz, 2010).

The contribution of agriculture to hunger and poverty reduction goes beyond its role as a source of food production and therefore increased food availability, lower food prices at the local level and the stability of food supplies. A (perhaps more important) role is that of a driving force for overall development of the rural space, employment and incomes for the rural poor. Rural incomes impact access and stability of access by increasing the purchasing power of the poor and in many instances also by playing the role of a buffer against external shocks. Rural growth, finally, is also both an outcome and a determinant of the access to the non-food inputs of nutrition security: education, care, access to services all tend to improve with rural growth, but are also push factors behind it.

Increases in agricultural productivity are essential in this context: an increase in agricultural productivity raises farm incomes. The extra income from agricultural growth can create demand for these goods and services, thus starting a virtuous cycle in which agricultural and rural off-farm income grow and sustain each other's growth. Therefore, increases in agricultural productivity (higher output per hectare or shift to high value crops) create a series of ripple effects in the rural areas through the

growth of rural off-farm activities, i.e., ‘synergy’ between agriculture and the rest of the rural space. Factors such as technology, access to resources and markets are some of the factors that determine the incentives and the capacities of the rural poor to participate in and benefit from overall rural growth.

*Trade.* Over a recent period of ten years (1999-2008) the developed countries have on average exported about 7.6% of their cereal production. The emerging countries are net cereal importers, but only at a marginal level (2.6%) compared to their own production. The least developed countries have imported on average 4.4% of their own production, or received it as food aid (Figure 6). They have benefited from the higher supplies and lower prices of temperate agricultural products on world markets, which are the result of the subsidies for production and trade in the developed countries. As this support is reduced, process are expected to increase, leading to higher food import bills for the least developed countries dependent of food imports. It is therefore important that the food importing countries will become more resilient to price increases at the world market (Figure 7).

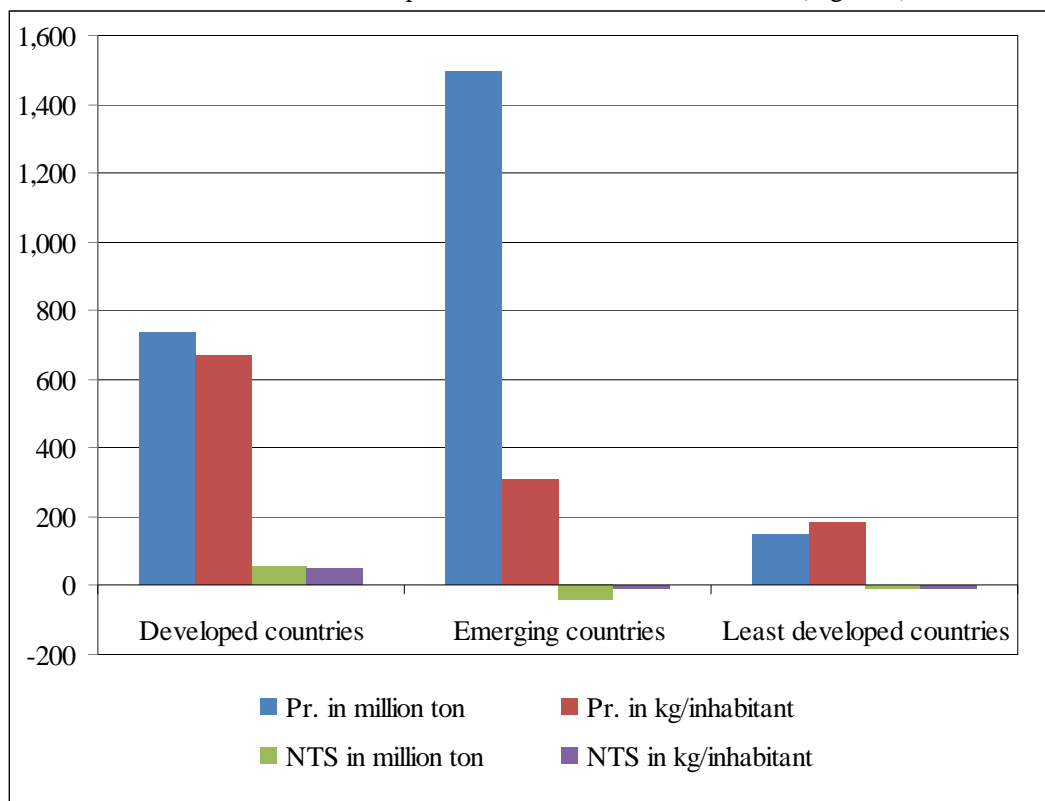


Figure 6 - Some characteristic average data with respect to cereal production. Pr. = production NTS = net trade surplus (+) export, (-) import (data FAO, updated after Schultz et al., 2005)

Many countries have a high dependence on food imports because they are resource constrained (e.g., some countries in the Near East and North Africa). Other countries may have high food import dependence for quite different reasons (e.g., countries in Sub-Saharan Africa (SSA)). For many, their agriculture sectors, despite relative abundance of natural resources, are underdeveloped and unable to satisfy domestic demand for food. Many countries will continue depending on international trade to ensure their food security (Figure 8 and Table 1).

Unilateral decisions by countries to restrict exports tend to aggravate the situation and results in increased speculation. Several factors point to the risk of growing price volatility. Low-income food deficit countries need to reduce their vulnerability to international market shocks. Price volatility issues and the need for a better governance of global commodity markets and food security system have attracted recent attention. Steps to prevent future food crises include establishing effective social safety nets, measures to tackle price volatility including appropriate use of food reserves, significant investments in modernisation of irrigation and drainage systems (including both technology and management techniques aiming fair sharing between users), as well as in the installation of new

systems, anticipation of possible impacts of climate change, especially with respect to rainfed agriculture, productivity-enhancing and fair sharing governance mechanisms for small-holder farmers and new institutional arrangements.

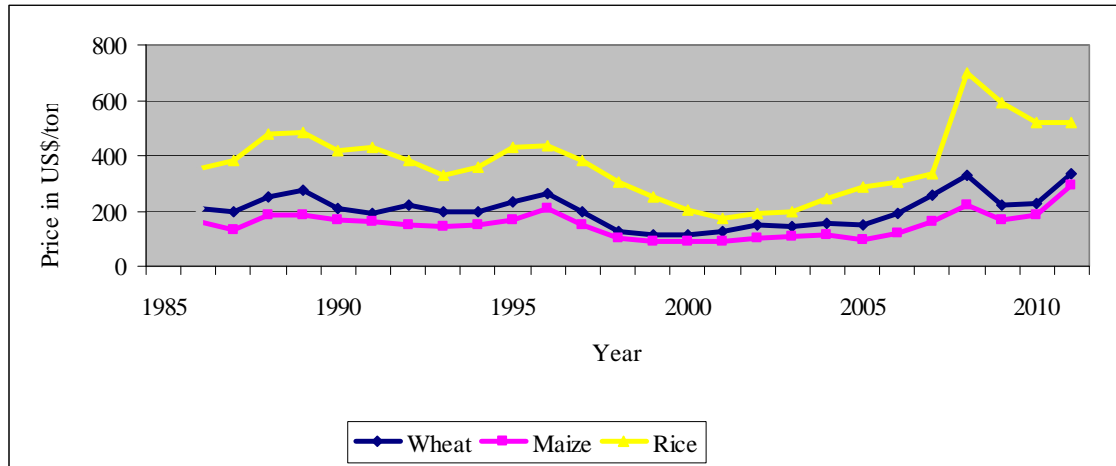


Figure 7 – World market prices for wheat, maize and rice (International Monetary Fund (IMF) and updated after International Commission on Irrigation and Drainage (ICID), 2009)

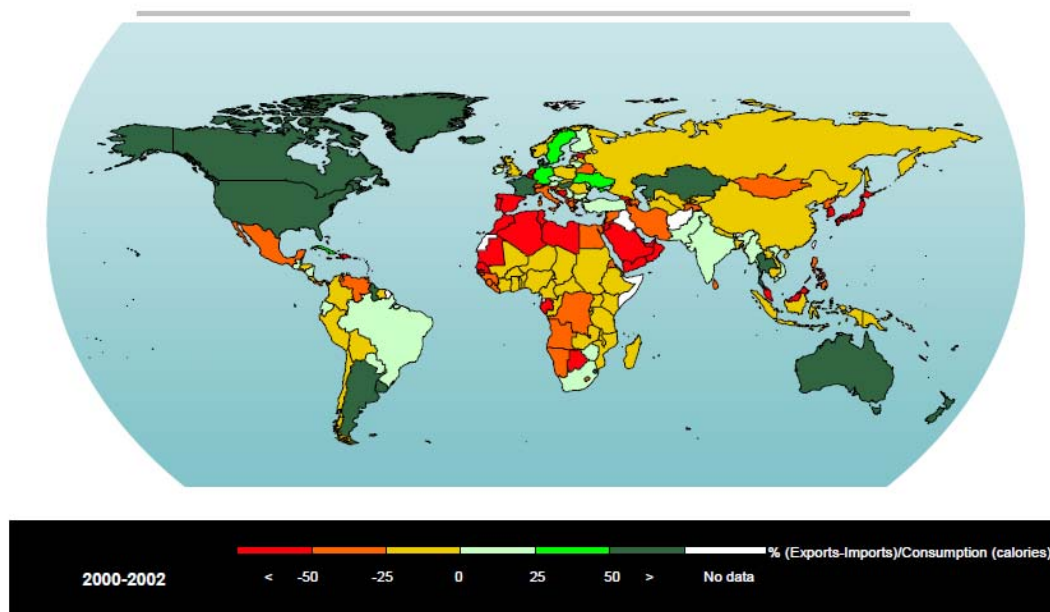


Figure 8 – Average net trade in food in the years 2000-02. The volume of food exported (green) or imported (yellow-red) is expressed as a percentage of total consumption in each country and represents, for the food importing country, their relative dependence on external sources of food (reference?).

With respect to the modernisation of schemes in the emerging and least developed countries it has to be realised that most of the schemes were originally developed by the Central Governments. These governments can/will generally not continue to take full responsibility for operation and maintenance of the schemes. Due to this transfer of responsibilities and/or even of ownership of the schemes to the stakeholders is an on-going process. This will imply a much larger role of the stakeholders and private sector, especially in large-scale farming, and in the emerging countries in the small-holder schemes as well. Among others this will require much more attention for extension and government subsidies to the stakeholders and private sector to make the modernisation processes and schemes successful. In parallel to such processes there will also be an important role for innovation.

This implies that research projects and programmes would have to be strongly linked to improved applications in practice.

Table 1 - Average cereals production, import and export during the years 2006-08 (million ton)  
(reference ? and *UNDP Population Reference Bureau*)

Source/region	Production (million ton)	Imports (million ton)	Export (million ton)	Net import (million ton)	Export/ production (%)	Population (million) (2010)
Asia	953	130	45	83	4.7	4,030
Africa	137	59	6	54	4.1	965
Americas	600	28	152	-94	58.9	911
Europe	430	24	53	-29	12.2	731
Oceania (Australia)	27	1	11	-14	54.2	35
World	2,150	270	270	-0.1	12.6	6,670
Developed countries	943	70	192	-122	20.3	956
Emerging countries	1,067	130	74	104	6.9	4,920
Least developed countries	133	23	5	18	3.4	798

**Food security strategies at the national level have to take into consideration the socioeconomic relationship between the urban and rural spaces and between agricultural and non-agricultural activities**

The sub-sectors of the agri-food economy, both upstream and downstream of farming, and agribusinesses play an important role in ensuring that safe and nutritious food is made cheaply available as widely as possible. The changes in the food distribution chain and their implications for nutrition, food safety, food prices, dietary changes and farmers' profits are attracting increasing attention across the developing world. Food policy clearly needs to deal with these domains. Innovative approaches are required bringing together public administration and the private sector.

Urban agriculture, both commercial and subsistence, can be a source of income and employment. Agriculture may have a role to play in addressing food security in urban agriculture, producing around 15% of all the food consumed in urban areas.

Despite the existence of urban agriculture in many cities, though, urban dwellers rely much more on purchased food to meet their nutritional needs, and hence a steady food supply at prices they can afford is what matters most for their food security. Efficient food-marketing systems are the first essential pillar of urban food security, as they have implications for both the price and safety of food. Fast urbanization requires that more and more food be supplied to the cities, and this may put weak food distribution infrastructures under stress.

On the positive side, policymaking for urban food security has the advantage, when compared to rural, of (i) having to reach a population that is much more spatially concentrated, (ii) being able to rely on a network of public services (education, health) that is usually more developed and far-reaching than the rural one, and (iii) being able to rely on more developed civil society and NGO networks that can bridge the gap between public and private sector actions. Also the increased reliance of urban consumers on purchased food, renders food fortification and supplementation programs generally more effective in urban areas.

**Improve the efficiency of the value-chain from producer to consumer; and reduce unnecessary demand (excessive consumption and waste - crop losses)**

It is not enough to ensure that future yields are high in some high-potential countries which can export surpluses to deficit countries. Rather, improvement of productivity and resilience of production systems is of particular importance in countries with limited import capacity and, within countries, in those areas where productivity growth in agriculture is essential for raising rural incomes, improving access to food for the poor and enabling local agriculture to compete with low-price food imports.

## **Markets have to function effectively and be regulated as food security for an increasing number of countries will depend on international trade and access to a stable supply of imports**

There is a consensus that openness to international trade is a fundamental component of an overall mix of policies which can foster economic growth and reduce poverty and food insecurity. International trade is of special importance for the emerging countries and to a certain extent for the least developed countries, particularly for the smaller ones, for which the limited size of their domestic markets may constitute a serious constraint to an efficient use of their domestic production potential. However increased openness to international trade is not without its costs, often in terms of unemployment, the decline of productive sectors in agriculture, increased concentration and agglomeration of the food system which leaves out small-scale subsistence farmers.

Another factor that needs urgent attention is the increased instability in commodity markets as reflected by more volatile prices.

Recommendations from the main political process on food security are reported in ANNEX V.

## CONCLUSIONS

Based on the issues as outlined in this Background Note the following conclusions can be drawn:

- food security is high in the political agenda of the last few years;
- there seems to be a convergence of actions in the response to food security needs, and they encompass three major *constituents* of the food pathway: (i) increase the supply (productivity enhancement); (ii) improve the efficiency of the value-chain from producer to consumer; (iii) reduce unnecessary demand (excessive consumption and waste) and avoidable degradation (natural resources losses); (iv) enhance the capacity to manage risks and uncertainties derived from crises (environmental, financial, etc.). The enabling environment to make these changes to happen need to be provided through policy, institutions (capacity building), private partnerships, fare trades and other measures;
- when investigating the water implication for these actions, we may find an analogous approach: (i) increase the supply (through wastewater reuse, rainfall harvesting, storage, etc.); (ii) increase efficiency and productivity of water use; (iii) reduce demand (e.g., cropping allocations); (iv) enhance capacity of especially rainfed agriculture to cope with climate variability and change; (v) importance of use of facilitation and conflict resolution techniques in discussions among stakeholders;
- translating these implications and linkages into the process of the Forum, the attached tables may serve as departing point for further development. It is recommended to use this framework on the basis of a regional differentiation, the criteria of which have to be defined;
- see also the second example of table.

A summary of recommendations is shown in Table 2

**Table 2 - Summary of recommendations**

1. Intensification of agricultural production to reduce yield gap (rainfed, rangelands, irrigated areas)
2. More investments in water infrastructure and in agricultural water management solutions (storage, access, transport and distribution; support mechanisms, fair shared management among water users, better use of facilitation and conflict resolution techniques)
3. Promote a sustainable and adaptive ways to intensify agriculture production
4. Food security strategies at the national level have to take into consideration the socioeconomic relationship between the urban and rural spaces and between agricultural and non-agricultural activities.
5. Improve the efficiency of the value-chain from producer to consumer; and reduce unnecessary demand (excessive consumption and waste-crop losses).
6. Markets have to function effectively and be regulated as food security for an increasing number of countries will depend on international trade and access to a stable supply of imports.

As a result of the set-up of the programme for WWF6 and the issues at stake in this thematic priority area eight Targets have been agreed upon. These are (Annex II):

- I. By 2020, sustainably increase by xx% - as compared to 2005 - 2007 baseline - land & water productivity (yield per ha and per m<sup>3</sup>) of rainfed agriculture (for specific crop categories);
- II. By 2020, sustainably increase by X% - as compared to 2005 - 2007 baseline - water productivity per unit land and per year (yield per m<sup>3</sup>, per ha and per year) of irrigated agriculture (for specific crop categories);
- III. Increase productivity and lower costs of irrigated agriculture (yield per ha, per m<sup>3</sup> of water and per \$\$ of production cost) in such a way that by year 20yy there is food security at affordable prices for all;
- IV. By year 20yy, increase by x% - as compared to 2005 - 2007 baseline - the safe use of non-conventional waters, either (treated) waste water or other low-quality water, in agriculture;
- V. By year 20yy increase by xx% the capacity of water storages in support of irrigated agriculture (either supplementary, deficit, or full irrigation) - within the framework of an environmentally sufficient and socially sound management;
- VI. By 20yy, develop and adopt two “regional” (e.g. West Africa; Europe / Euro-Med) visions for food security and water, and 200 local sustainable agriculture plans;
- VII. By 20yy, develop national strategic action programmes for key ‘hotspot’ aquifers exploited by intensive agricultural use (% aquifer depletion, % pollution), including a local definition of maximum admissible drawdown (MAD) and local definition of maximum admissible pollution levels (MAP) for agricultural uses;
- VIII. By 2015, define water-related components of a strategy that will improve food supply chain efficiency by 50% and promote sustainable diets, including steps for its implementation by 2025.

These Targets are described in more detail in a separate note.

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### Still to be added:

- **Reference for Figure 3 and for Table 1.**

ANNEX I. Optimal Use of Water for Food Security (to be adapted for the various Regions)

Dimension	Issue	System	Recommendation	Indicator	Target	Key Stakeholder
Supply/Availability of food						
	Increase of L&W productivity					
		Rainfed Agriculture				
			More crop per land	Global agricultural land productivity (ton ha-1 referred to specific crop categories)	X% increase from 2005-07 baseline, by 20yy	Farmers; extension services
			Conservation Agriculture (CA)	n. of hectares adopting CA practices	X% of existing surface by 20yy	Farmers; extension services
			Better crop husbandry (nutrition, pest control, etc.)			Farmers; extension services
			Rainfall Water-Harvesting (RWH)	n. of hectares equipped with RWH techniques	X% of existing surface by 20yy	Farmers; governmental agencies
			Improved farm technology and management	n. of farmers with improved technology and management practices	X% increase in the n. of farmers from 2005-07 baseline, by 20yy	Farmers; extension services
		Rangelands				
			Improved rangeland management (RLM)	n. of hectares adopting improved RLM practices	X% of existing surface by 20yy	Farmers; extension services; sub-regional development authorities
		Supplemental to fully irrigated Agriculture				

			More crop per drop	Global agricultural water productivity (kg m <sup>3</sup> referred to specific crop categories)	X% increase from 2005-07 baseline, by 20yy	Farmers; extension services
			Modernization of large irrigation systems	Number of irrigation systems gone through a modernization process	X% of existing irrigation systems by 20yy	Governmental Agencies; Irrigation Agencies (WUA); lending agencies
			Improved on-farm water-control technology and management	Number of hectares equipped with trickle irrigation	X% of existing surface by 20yy	Farmers Unions; manufacturers; extension services
			Optimized water demand management			
			Improved use of (treated) waste water, brackish and low saline drainage water			Urban council
	Increase of Ag water investments					
		Both Rainfed and Irrigated Ag				
			Increased water storage for supplemental irrigation and their management	Capacity of water storages	X m3 by 20yy	Governmental Agencies; lending agencies
			increase the investment for MUS systems and their management			Planning Agencies; basin agencies
			Support mechanism			
			increase financing for agricultural water solutions for small-holders			
			Access to basic services	LINK to WSS		
			access to technical support/ extension services to strengthen adaptive capacity of farmers			
			access to innovative financing targeted to small-holders			

	Sustainability and Stability					
		Coherence and Balance				
			allocation-Improve coherence and balance of water allocation between sectors(urban/rural)			Planning Agencies; basin agencies
			territorial planning-ensure balance of water allocation between scales (farm/landscape; small farms/large farms),			Planning Agencies; basin agencies
			Balance value creation from Ag water use of the 3 dimensions (economic, environmental, social)			Planning Agencies;development agencies; basin agencies
			Improved ground water management: better control of aquifer levels	n. of critical sites		Water Agencies; basin agencies
			Reduction of agricultural water use in places where such use is excessive			water agencies
		Demand Management				
			Promotion of sustainable diets			Public - States
			Reduce Post-harvest losses (close to producer)			Farmers
			Conservation of food stocks			Retailers
			Reduce Food-chain losses (between producer and consumer)			Grocery companies
			Efficiency in the food processing			Agro Industries
			Reduce household losses			Consumers
			Public awareness building of food/water footprint			Public - States

Access to food						
	Income/Jobs					
		Rural sector				
			Promotion of rural markets and agro-industry			Development Agencies
			Payment for environmental services			Governmental Agencies, Sub-regional Authority, City Council
			Promotion of off-farm services			
		Urban sector				
			Promotion of urban and peri-urban agriculture			
	Right to Food					
			Mechanisms to implement food rights			
	Hygiene, Sanitation, Nutrition					
		Rural sector				
			Ensure good quality (safe) water			
			Mixed cropping production for a balanced diet			
	Food trade					
		International				
			Policy coherence and coordination			International Commission on Food Security (CFS)
			Ban speculation			Global organization (WTO/IFM), Trade firms
			Analyze water footprint/virtual water			Governmental Agencies, Regional bodies
		National				

Uncertainty of food supply and access						
	Climate change / weather					
		Agricultural resilience				
			Assess impact of climate change on water and rainfed agriculture and develop adaptation plans for lessening impacts on agriculture			
			Invest in infrastructure and management to adapt to climate change in water and rainfed agriculture			
		Natural Hazards Floods/droughts				
			Encourage development of preparedness plans at the national level for droughts and floods	Reduction in crops/animals lost due to extreme climate events	# of countries with risk-based drought/flood management plans, development of improved risk-based decision support tools	Government agencies, farm groups,
			Early warning and Emergency response	Improved indicators for assessing severity and impacts		
			Managing/exchange of water rights			
	Food prices					



## 2<sup>nd</sup> Example of Table format

### Optimal Use of Water for Food Security: Region A\*\*\*

Dimension	Issue	System	General Recommendation (Goal orientation)	Thematic Conflicts to be addressed	Key Stakeholder Groups concerned	Consensus based recommendation at WWF (process/target)	Indicator
<i>Example</i>							
<b>Availability</b>							
	Sustainable increase of productivity						
		Rainfed Agriculture	More crop per land				
				* Direct foreign investment in land (and its implications on water resources) vs. Locally owned production (and water management)	* National Land and Water institutions *Foreign national/private investors * Local farmer organizations * civil society groups * environment-talists	Specified region-/country-specific criteria, preconditions and required processes as a basis for direct foreign investment	Consensus based recommendations resulting from WWF are introduced / accepted at specified political levels

\*\*\* Criteria for regionalisation to be discussed.



ANNEX II APPROVED TARGETS CORE GROUP 2.2 “CONTRIBUTE TO FOOD SECURITY BY THE OPTIMAL USE OF WATER”.

**Suggested Core Group members:**

- 1. **FAO** : Pasquale Steduto - coordinator
- 2. **ICID** : Bart Schultz - co-coordinator
- 3. **Indian Farmers Associations** : Suba Rao
- 4. **International Youth Council** : Saba Loftus
- 5. **French Ministry of Agriculture** : Guillaume Benoît
- 6. **Syngenta Foundation for Sustainable Agriculture** : to be contacted
- 7. **OECD** : Kevin Parris

Issue	PPC	TARGETS	TSG Coordinator
<b>Sustainable increase of Land &amp; Water Productivity</b>		<b>Target 1:</b> By 2020, sustainably increase by xx% - as compared to 2005 - 2007 baseline - land & water productivity (yield per ha and per m <sup>3</sup> ) of rainfed agriculture (for specific crop categories)	<b>ICARDA:</b> Theib Oweis <b>Co-coordinator: AFD :</b> Jean-François Cavana
		<b>Target 2:</b> By 2020, sustainably increase by X% - as compared to 2005 - 2007 baseline - water productivity per unit land and per year (yield per m <sup>3</sup> , per ha and per year) of irrigated agriculture (for specific crop categories)	<b>Water for Food Institute, Nebraska University:</b> Thomas Farrel <b>FAO:</b> Pasquale Steduto
		<b>Target 3:</b> Increase productivity and lower costs of irrigated agriculture (yield per ha, per m <sup>3</sup> of water and per \$\$ of production cost) in such a way that by year 20yy there is food security at affordable prices for all	<b>ICID:</b> Jaques Plantey + Bart Schultz
		<b>Target 4:</b> By year 20yy, increase by x% - as compared to 2005 - 2007 baseline - the safe use of non-conventional waters, either (treated) waste water or other low-quality water, in agriculture	<b>ICBA:</b> Faisal Taha (Saudi Arabia)
		<b>Target 5:</b> By year 20yy increase by xx% the capacity of water storages in support of irrigated agriculture (either supplementary, deficit, or full irrigation) - within the framework of an environmentally sufficient and socially sound management	<b>ICID:</b> Prof. Chandra A. Madramootoo
<b>Territorial planning and strategies</b>	G	<b>Target 6:</b> By 20yy, develop and adopt two “regional” (e.g. West Africa; Europe / Euro-Med) visions for food security and water, and 200 local sustainable agriculture plans	<b>Arab Water Council:</b> Safwat Abdel - Dayem
<b>Hotspots</b>	G LA	<b>Target 7:</b> By 20yy, develop national strategic action programmes for key ‘hotspot’ aquifers exploited by intensive agricultural use (% aquifer depletion, % pollution), including a local definition of maximum admissible drawdown (MAD)and local definition of maximum admissible pollution levels (MAP) for agricultural uses	<b>FAO:</b> Groundwater-GEF Project: Jake Burke <b>Co-coordinator: High Council for Food, Agriculture and Rural Space :</b> Patrick Hurand
<b>Food supply chain</b>		<b>Target 8:</b> By 2015, define water-related components of a strategy that will improve food supply chain efficiency by 50% and promote sustainable diets, including steps for its implementation by 2025.	<b>SIWI:</b> Jan Lundqvist <b>Co-coordinator: FAO :</b> Barbara Burlingame



## ANNEX III. TERMS OF REFERENCE FOR THEMATIC PROCESS CORE GROUP

The basic architecture of the 6th World Water Forum<sup>4</sup> consists of three thematic *Strategic Directions* covering twelve *Priorities for Action* and three *Conditions for Success* – along with complementary Regional, Political, and Citizen Processes. Within each thematic Priority for Action, a number of targets have been identified.

The International Forum Committee Board has affirmed and agreed to:

- create a Core Group (CG) for each *Priority for Action* and *Condition for Success*, consisting of one Coordinator and additional members;
- adopt a preliminary list of 89 thematic targets;
- appoint a Coordinator for each Target and Solution Group (TSG).

As a collective effort, the participants in the Core Groups and Target and Solution Groups will engage in and benefit from:

- shaping a strategic agenda that emphasizes implementable solutions for water issues;
- engaging in dialogue with stakeholders throughout the world representing diverse viewpoints (geographically and sector-wise) and areas of expertise;
- learning about effective and innovative solutions to local, regional, national, and international water issues;
- sharing experiences in terms of solutions that work, and explore how other people throughout the world might learn from and adapt these to local contexts;
- building new relationships and set up professional networks within the global water community;
- creating commitments from a wide range of organization to improve water policy & management at the different relevant spatial scale.

The intent of the Secretariat is to provide a variety of ways for Core Groups members and Target and Solutions Groups' coordinators to present, discuss, gather contributions and advice, and adapt the targets and solutions before, during, and after Forum Week -- such as poster sessions, roundtable discussions, world cafés, high-level panels, and interactive sessions for knowledge exchange. To this particular extent, it will support the Core Groups members and Target and Solutions Groups' coordinators in conducting their activities and reporting tasks up until March 2012, and to set-up a collaborative platform to allow for online information exchange and work.

The roles and responsibilities of Core Groups

### **Organisation and role**

A Core Group has been created for each Priority for Action and Condition for Success (15 in total). Led by a Coordinator, the basic responsibility of the Core Group is to ensure that the relevant Target and Solution Groups *frame target action plans, identify existing and innovative solutions*, prepare the possible 6th World Water Forum session or activity associated with the targets and *seek strong commitments* to targets or solutions.

### **Composition**

Core Groups are made of a small number of institutions having recognition by their peers and capable of mobilising resources, and with networks of global reach; Memberships of people/institution from different categories of actors ensure a balanced representation within each Core Group.

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<sup>4</sup> This basic architecture and the specific targets developed to date are the product of several multiparty dialogues, including the June 2010 Kick-off meeting in Marseilles, the 2nd Stakeholder Consultation Meeting in January 2011 in Paris, and multiple conversations among stakeholders, the Thematic Process Commission, and the Secretariat.

**Core Group Coordinators**

- provide overall direction and leadership for the Core Groups and all related Target and Solutions Groups;
- ensure that Target and Solutions Groups produce high-quality products according to the schedule;
- consult on a regular basis with Secretariat staff, and seek their input and advice on both the expected process and outcomes for Target and Solutions Groups;
- participate, as requested, in meetings with other Core Group Coordinators to clarify roles and responsibilities, address common problems, and share lessons learned.

**Core Group Members**

- ensure a balanced multi-stakeholder representation within each Target and Solutions Groups;
- review and synthesize, as appropriate, the products of Target and Solutions Groups;
- explore opportunities to integrate the targets and solutions emerging within the Core Group first and with respect to the targets and solutions emerging in other Core Groups;
- explore opportunities to integrate emerging targets and solutions within the Core Group with Regional and Political Processes;
- oversee the general organisation of their Priority for Action/Condition for Success’ possible sessions and activities at the Forum.

**Activities and Deliverables**

<p><i>By September 2011</i></p>	<p>To produce a draft report on the Priority for Action or Condition for Success that addresses the following topics:</p> <ul style="list-style-type: none"> <li>• provide a concise statement about the issues addressed and their significance and explain the relevance of each of their target;</li> <li>• present a synthesis of existing and innovative solutions on the basis of the Target and Solutions Groups’ case studies.</li> </ul>
<p><i>By December 2011</i></p>	<ul style="list-style-type: none"> <li>• submit the final report on their PFA/CS to TPC. The final report should integrate reports and case studies produced by the Target and Solutions Groups and will be presented at the Forum, and should also identify the outcomes from other preparatory processes (regional, political, citizens and grassroots) that are relevant to their target.</li> <li>• gather, synthesize, and respond to feedback received on targets &amp; solutions pertaining to CGs, using the <i>Online Collaborative Platform</i> and other tools;</li> <li>• identify follow-up activities.</li> </ul>

## ANNEX IV TERMS OF REFERENCE FOR TTARGETS AND SOLUTIONS GROUPS

### **Organisation and role**

A Target and Solutions Group is a multi-stakeholder group dedicated to a specific target. It is tasked with developing a detailed target action plan and identifying and reporting on solutions contributing to reach the given target. Target and Solutions Groups are also to work on securing commitments along with the identified solutions.

### **Composition**

Each Target and Solutions Group will be a multi-stakeholder group that develops a detailed action plan for a particular target, including existing and innovative solutions.

The Target and Solutions Group will actively solicit contributions from a wide range of organisations, beginning with the volunteers and stakeholders identified at the 2nd Stakeholder Consultation Meeting.

The composition of the Target and Solutions Group may expand as its work evolves and more people become engaged. It should strike a good geographical and institutional balance within its members.

Other organisations may submit contributions regarding particular targets and solutions via the upcoming online Platform for Solutions. These contributions will be considered by the appropriate TSG and integrated as appropriate provided the applicant makes a clear contribution to the identification and implementation of solutions to reach the given target.

### **Target and Solutions Group Coordinator**

Each Target and Solutions Group has a Coordinator

The Target and Solutions Group Coordinator is in charge of leading the group and liaising with both the members of the Target and Solutions Group and the Core Group

The Target and Solutions Group coordinator shall:

- ensure the coherence of the actions and solutions put forward by both Core Group and Target and Solutions Group members for achieving the target;
- suggest to the Core Group the links to other processes required for the implementation of solutions;
- chair the meetings and teleconferences of his/her Target and Solutions Group and report progress to the Core Group;
- approve spontaneous applications to become Target and Solutions Group contributors via the Forum's website contact;
- be vested with the task of expanding Target and Solutions Group contributors' list and request access to collaborative platform for new contributors by informing the Core Group coordinator;
- moderate and review proposals submitted spontaneously online on the Platform of Solutions.

### **Activities and deliverables**

Under the supervision of its Target and Solutions Group coordinator, and for its associated target, the Target and Solutions Group shall:

- set up its initial work programme in view of the September 2011 with intermediate reporting milestone and the March 2012 Forum;
- prepare presentations of key solutions for their target to be presented in a possible Forum session or activity according to the frame and guidelines provided by the organisers;

- contribute to the post-Forum report and synthesis (review, brainstorming) and to contribute to implementation plans;
- participate, as requested, in multi-stakeholder meetings and/or meetings with other Target and Solutions Groups and Core Groups.

<i>By June 2011</i>	<ul style="list-style-type: none"> <li>• produce a target action plan (up to and beyond 2012) that suggests key steps to be taken to achieve the target within its SMART deadline</li> </ul>
<i>By July 2011</i>	<ul style="list-style-type: none"> <li>• produce case studies of existing and innovative solutions that contribute to achieving the target using the <i>Solutions Templates</i> provided by the Secretariat.</li> </ul>
<i>By late August 2011</i>	<ul style="list-style-type: none"> <li>• produce an intermediate report on the target and its identified solutions (key solutions case studies + other solutions + target action plan + steps already taken). This will contribute to the Core Group draft report on their PFA/CS</li> </ul>
<i>By November 2011</i>	<ul style="list-style-type: none"> <li>• produce a final progress report on the target action plan implementation summing up the work of the Target and Solutions Groups (key solutions case studies + other solutions + target action plan + steps already taken).</li> </ul>

## ANNEX V. Recommendations from main political processes on food security

### 1. From 'L'Aquila joint statement on Global Food Security' (Aquila, 10 July 2009).

Of relevance for our debate, here some paragraphs of the joint statement are abstracted.

- effective *food security* actions must be *coupled with* adaptation and mitigation measures in relation to *climate change*, sustainable management of *water*, land, soil and other natural resources, including the protection of biodiversity;
- we see a comprehensive approach as including: increased agricultural productivity, stimulus to pre and post-harvest interventions, emphasis on private sector growth, small-holder, women and families, preservation of the natural resource base, expansion of employment and decent work opportunities, knowledge and training, increased trade flow, and support for good governance and policy reform;
- the food security agenda should focus on agriculture and rural development by promoting sustainable production, productivity and rural economic growth;
- it is necessary to improve access to food through more equitable income generation and distribution, employment creation and income prospects in emerging and least developed countries;
- we support public-private partnerships;
- emergency assistance will remain an important means to help facing acute hunger;
- special focus must be devoted to small-holder and women farmers and their access to land, financial services, including microfinance and markets. Sustained efforts and investments are necessary for enhancing agricultural productivity and for livestock and fisheries development. Priority actions should include improving access to better seeds, fertilizers, promoting sustainable management of water, forests and natural resources, strengthening capacities to provide extension services and risk management instruments, and enhancing the efficiency of food value chains. In this regard, the increased involvement of civil society and private sector is a key factor of success.;
- CAADP is an effective vehicle for ensuring that resources are targeted to a country's plans and priorities.

### 2. From the Declaration on the World Summit on Food Security (Rome, 16-18 November 2009)

Four strategic objectives were agreed upon. Briefly:

- confirmation of commitment on MDG 1 .....
- join effort in the Global Partnership for Agriculture, Food Security and Nutrition and reform f the World Committee on Food Security .....
- reverse the decline in domestic and international funding for agriculture, food security and rural development in emerging and least developed countries, and promote new investment to increase sustainable agricultural production and productivity, reduce poverty and work towards achieving food security and access to food for all;
- proactively face the challenges of climate change to food security and the need for adaptation of, and mitigation in, agriculture .....

To achieve these strategic objectives, commitments and actions shall be based on the *Five Rome Principles for Sustainable Global Food Security*. Of relevance for our debate, here some paragraphs of the Declaration are abstracted.

#### *Under Principle 1.*

- We reaffirm that *food security is a national responsibility* and that any plans for addressing food security challenges must be nationally articulated, designed, owned and led, and built on consultation with all key stakeholders. We will make food security a high priority and will

reflect this in our national programs and budgets.

*Under Principle 3.*

- we support rural development, creation of employment and more equitable income generation and distribution to overcome poverty and increase access to food. We will create the conditions for production increases, including access to improved seed and inputs and adaptation of agriculture to climate change, recognizing the mitigating potential of sustainable agriculture. We will work to increase public investment and encourage private investment in country-developed plans for rural infrastructure and support services, including -but not limited- to roads, storage, irrigation, communication infrastructure, education, technical support and health;
- we will, as appropriate, strengthen the capacity of farmers and the capacity of farmers' organizations;
- we commit, considering diverse conditions in each country, to support increased production and productivity of agriculture, and to reduce pre- and post-harvest losses. We will implement sustainable practices, including responsible fisheries, improved resource use, protection of the environment, conservation of the natural resource base and enhanced use of ecosystem services;
- we recognize that increasing agricultural productivity is the main means to meet the increasing demand for food given the constraints on expanding land and water used for food production. We will seek to mobilize the resources needed to increase productivity, including the review, approval and adoption of biotechnology and other new technologies and innovations that are safe, effective and environmentally sustainable.

*3. From the G20 of Seoul (11-12, November, 2010).*

Of relevance for our debate, here some sentences/paragraphs of the Declaration are abstracted.

- we are determined to put jobs at the heart of the recovery;
- we will prioritize action on addressing critical bottlenecks, including infrastructure deficits, food market volatility;
- recognize the importance of private sector-led growth and job creation;
- accelerate job creation, ensure more stable financial markets;
- undertake reforms to reduce the reliance on external demand and focus more on domestic sources of growth in surplus countries while promoting higher national savings and enhancing export competitiveness in deficit countries;
- the Seoul Consensus also identifies nine key pillars where we believe actions are necessary to resolve the most significant bottlenecks to inclusive, sustainable and resilient growth in emerging and least developed countries, LICs in particular: *infrastructure, human resource development, trade, private investment and job creation, food security, growth with resilience, financial inclusion, domestic resource mobilization and knowledge sharing*. The Multi-Year Action Plan then outlines the specific, detailed actions to which we commit in order to address these bottlenecks, including to:
  - \* facilitate increased investment from public, semi-public and private sources;
  - \* improve the development of employable skills;
  - \* improve the access and availability to trade;
  - \* identify, enhance and promote responsible private investment in value chains;
  - \* enhance *food security* policy coherence and coordination and *increase agricultural productivity and food availability*, including by advancing innovative results-based mechanisms, promoting responsible agriculture investment, fostering small-holder agriculture...;
  - \* improve income security;
  - \* increase access to finance for the poor and small and medium enterprises;
  - \* build sustainable revenue;
  - \* scale up and mainstream sharing of knowledge and experience.

With regard to Food Security (e), the following actions were indicated:

*ACTION 1: Enhance Policy Coherence and Coordination*

- in order to strengthen existing agriculture research systems we request the FAO and the World Bank to examine and recommend potential innovative results-based mechanisms, such as those examined by the Consultative Group on International Agricultural Research (CGIAR) and advanced market commitments for *enhanced agricultural productivity*;
- increase policy coherence for food security consistent with the Rome Principles.

*ACTION 2: Mitigate Risk in Price Volatility and Enhance Protection for the Most Vulnerable*

*4 From the Committee on World Food Security (CFS)*

*Relevant peculiarity:* The advisory group of the CSF is made of representatives from five different categories of participants: UN bodies; Civil Society and NGOs; International Agricultural Research Institutions; Private Sector associations and Philanthropic Foundations.

*Among the initiatives of the CFS there is the implementation of ‘A tool to map food security actions at country level ... to provide national governments and other users with an improved capacity to make better-informed decisions about how best to design national and regional policies, strategies and programs and to allocate resources to achieve food security and nutrition objectives. The tool would provide ‘(i) profiling actions, where actions include policies, plans, strategies, programs, and projects that support food security and nutrition objectives; (ii) the charting of linkages of these actions to resources flows, both donor and domestic, implementing institutions and benefiting locations and populations.*