

## Towards Global Food Security: Fighting against hunger

### 1. INTRODUCTION

*"all people, at all times, should have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".*

The 1996 World Food Summit definition of food security

*"Food security is the peoples right to define their own policies and strategies for the sustainable production, distribution and consumption of food that guarantees the right to food for the entire population, on the basis of small and medium-sized production, respecting their own cultures and the diversity of peasant, fishing and indigenous forms of agricultural production, marketing and management of rural areas, in which women play a fundamental role."*

Final Declaration of World Forum on Food Sovereignty, 2001

Equitable access to food refers to both access to the supply (or availability) of food and to the entitlement to food i.e. the resources, financial and natural and human ability to obtain food. Food insecurity occurs when food is either unavailable and/or where there is a lack of entitlement to food. Insecurity takes two basic forms:

- *Transitory food insecurity*: this generally refers to extreme cases of famine caused by war, flooding, drought, crop failure, pest infestations, and loss of purchasing power in farming communities and market failures through high food prices. Such problems can also trigger production and subsistence food crises threatening a populations access to food;
- *Chronic food insecurity*: long term and deep-rooted food insecurity is largely driven by endemic poverty. People are subject to a continual problem of poor diet through an inability to acquire their basic food requirements, either because they are unable to buy it or to produce it for themselves.

Food insecurity is linked more to issues like: poverty, low income, poor infrastructure, inequitable access to land, water, credit and markets, rather than a failure in food production techniques. The problems of inequity are further exacerbated by internal conflict and war which can dislocate rural and farming communities. Vulnerability is also increased due to natural (or human-induced) disasters, such as floods and droughts. Food sovereignty is a pre-condition for establishing genuine food security. This is the right of each nation and its peoples to maintain and develop its own capacity to produce people's basic food, whilst respecting environmental, productive and cultural diversity. Participation by producers and consumers in decision-making is another key issue.

### **The Right to Food for All**

At the 1996 UN World Food Summit, representatives from 185 countries and the European Community vowed to achieve universal food security and reaffirmed,

*"the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to freedom from hunger."*

This meeting set a blueprint for an ongoing effort to eradicate hunger in all countries with a time-bound, measurable goal of reducing the number of hungry people by half by 2015. Despite this and while the number of undernourished people is falling at a rate of 6 million every year, it continues to be far below the 22 million a year needed to reach the 2015 target (FAO 2001).

It is against a context of persistent food insecurity that the *"World Food Summit: five years later"* review was held in June 2002. The conference looked at progress to date and considered ways to further tackle the problems and to accelerate the process. *"We must raise both the political will and the financial resources to fight hunger. The international community has repeatedly declared that it is dedicated to the eradication of poverty. Eliminating hunger is the vital first step."* Dr Jacques Diouf, Director-General of FAO, 2001.

# Food Security

## Briefing Paper

Table 1: Regional and global trends and critical issues [1]

	Trends	Issues
Global	<ul style="list-style-type: none"> <li>* Hunger: hunger afflicts more than 800 million people.</li> <li>* Poverty: Over 1.2 billion people (22% of the world's population) live on less than 1 dollar a day.</li> <li>* Rural crisis: 70% of the world's extremely poor and food insecure people live in rural areas.</li> </ul>	<ul style="list-style-type: none"> <li>* Rights: Hunger is an affront to both human dignity and human rights.</li> <li>* Economy: Agriculture is the predominant economic activity in rural areas - 85% of rural populations are engaged in it.</li> </ul>
Africa	<ul style="list-style-type: none"> <li>* Agriculture: The livelihoods of 60% of people are dependent on agriculture. Land is intensively used in most African sub-regions.</li> <li>* Food Supply: In West Africa food supply is tight. Central Africa is also facing problems, especially in Democratic Republic of Congo, Burundi, Rwanda, Zambia and Mozambique.</li> <li>* Undernourished: numbers doubled from 100 million people in late 1960s to nearly 200 million in 1995. 46% of people in Africa are undernourished, 49% in Ethiopia. Despite a projected decline in under-nourishment by 2015, high population growth rates mean that the actual number could increase. 18 African countries are in the FAO "Group 5" [2]</li> <li>* Soil degradation: Approximately 500 million hectares of land have been affected by soil degradation since 1950 (65% of agricultural land)</li> <li>* Water shortage: 14 African countries are subject to water stress or water scarcity, increasing to 25 countries by 2025.</li> <li>* Food aid flows: At the height of the Horn of Africa's drought (2000), 3.2 million Kenyans were dependent on food aid, and malnutrition reached 40 percent of the population, more than 3 times the normal level (UNICEF). In 2000, Africa received 2.8 million tonnes of food aid, more than 25% of the world total that year. Provision of Food aid is dropping e.g. in Sub Saharan Africa, where food aid is 14% of total food imports, aid has dropped by over half from 10 years ago.</li> <li>* Calorific intake: In 1997, the global daily average intake of calories was just below 2,800 kilocalories. In Sub Saharan Africa people receive on average less than 2,200 kilocalories a day.</li> <li>* HIV/AIDs: Africa accounts for 1/10th of the world's population but 9/10 of the cases of HIV/AIDS. On small farms agricultural output has dropped by over 50% in the last 5 years, mainly from AIDS. In the 25 most affected countries, 7 million agricultural workers have died from AIDs since 1985.</li> </ul>	<ul style="list-style-type: none"> <li>* Interlinkages: Poverty, environmental degradation and resource depletion, including desertification, have led to on-going food insecurity and deterioration in the diversity of diet.</li> <li>* Social instability: Chronic instability and conflict, poor governance, population displacement. For example, there are more than 2.5 million internally displaced people in Angola.</li> <li>* Erratic weather conditions: Floods and droughts, water stress, agricultural failure, and fragile ecosystems.</li> <li>* Land rights: Inappropriate and inequitable land tenure systems, including gender imbalances impact self-sufficiency.</li> <li>* Poor land management: Sub-Saharan Africa annual average nutrient loss is estimated to be 24kg/ha.</li> <li>* World Food Programme Vulnerability Analysis: Mapping is providing data on food security, leading to better targeting of aid and land policy reform to identify viable farmland and enhance agricultural transformation of the country.</li> <li>* Technology: Lack of agricultural technologies suitable for African conditions contributes to under-realisation of production potential.</li> <li>* Market access: High instability of commodities e.g. coffee, leading to the need to diversify exports and invest in making domestic market more competitive on wider range of products.</li> <li>* HIV/AIDS: Inaction and poor health infrastructure to tackle HIV/AIDS has had a devastating impact on food security since HIV/AIDS affects the most productive age group.</li> </ul>
Asia & Pacific	<ul style="list-style-type: none"> <li>* Hunger &amp; poverty: Highest numbers of chronically hungry people. Over 40% population of India and Indonesia below international poverty line [3]. 16% of countries in Asia &amp; the Pacific suffer from average food deficits of more than 300 kcal/person/day</li> <li>* Under-nourishment: This is expected to decline from 16% in 1996-98 to 7% in 2015. Bangladesh, Haiti, Mongolia and the Democratic People's Republic of Korea are in FAO "Group 5" [4]: High prevalence of under nourishment and high energy deficit.</li> <li>* China and India: Slowing population &amp; strong economic growth should bring significant increases in per capita food availability between 1996-98 and 2015. But there are concerns that the 'Green Revolution' in India is losing momentum - aggregate food-grain targets not met despite a significant jump in fertilizer and pesticide use.</li> <li>* Continued rise of urban agriculture: Domestic production is practiced by most households in South East Asia &amp; Pacific Islands.* Water stress: At least one in three Asians have no access to safe drinking water. Freshwater will be a major limiting factor to future food production.</li> <li>* Food distribution: In India 50 million tonnes of food in buffer stock, yet 300 million people go each day without a meal [5].</li> <li>* Land reforms: In India the states where poverty has fallen the fastest are those that have implemented land reforms. In China, land reforms in 70's and 80's shifting from large to small land units lifted millions of poor rural families out of poverty.</li> </ul>	<ul style="list-style-type: none"> <li>* Markets: Protectionist policies in Japan and China (amongst others) contribute to food shortages.</li> <li>* Intensive practices: Over-grazing, over-cropping, and overuse of inorganic fertilizers are key problems.</li> <li>* Financial instability and rural isolation: financial crises have impacted on the whole region devaluating currencies and increasing food prices. Higher prices put many staple foods out of reach of poorer groups. Leading to displaced labour, under-investment domestically, decreased food supply as urban demand fell for agricultural products and rural non-farm employment also impacted. Agriculture is a key sector in seeking poverty elimination, since the poor are mainly found in rural areas and predominately employed in agriculturally related areas.</li> </ul>
North America	<ul style="list-style-type: none"> <li>* Over-consumption: The low prevalence of under-nourishment, is contrasted with excessively high consumption resulting linked to different forms of health problems e.g. obesity. Calorific intake for North Americans is over than 3,600 kilocalories daily, 67% more than Sub Saharan Africa.</li> <li>* Intensive production: Whilst Agricultural production growing, land degradation, associated with the agricultural expansion, intensification and industrialisation is of growing concern. A key issue is the use of chemical pesticides (36% of world pesticide use) which have increased food production but impacted negatively upon the environment and human health. Excessive groundwater exploitation is also reducing water supplies and water quality</li> </ul>	<ul style="list-style-type: none"> <li>* Market distortion: The US is the largest exporter of agricultural products (12% global total) and imposes significant trade barriers and subsidies. USA is now thinking of introducing new Farming Bill relating to agricultural export subsidies, which would further distort global market imbalances.</li> </ul>

Table 1: Regional and global trends and critical issues (continued)

	Trends	Issues
Europe & Central Asia	<p>* Vulnerability: Georgia, Armenia and Tajikistan all face relatively high vulnerability due to drought. More than 1 million people are vulnerable to food shortages in the Balkans, especially Yugoslavia and Russian Federation. The CIS and Eastern European show little signs of increasing production and even signs of decline.</p> <p>* Hunger and Food Aid: Afghanistan is now one of the world's most serious hunger hotspots, with several million people reaching critical levels of hunger. Chronic problems also persist in Mongolia and Democratic People's Republic of Korea - due to drought and cold, harsh winters, and civil strife. Despite these problems total flows of food aid to critical areas fell in 2000 to 10.2 million tonnes of emergency cereal shipments (down 800,000 tonnes). Although this level still exceeded the minimum food aid commitments of the 1999 food aid convention.</p> <p>* Food production &amp; consumption: In western Europe food production and consumption have grown. Pollution of land and water by excessive use of fertilisers and pesticides.</p> <p>Overexploitation of groundwater resources and significant groundwater pollution by nitrates, pesticides, heavy metals and hydrocarbons.</p> <p>* GMOs &amp; food safety: Growing public concern. Trade barriers and subsidies distorting EU production to produce surpluses.</p> <p>Part of Agenda 2000, the EC decided to introduce environmental standards for farmers. New policies for improving water quality were introduced in a number of countries, relating to the new water framework directive.</p> <p>* Degradation of land and water: Desertification due to drought, population growth, economic constraints and urbanisation. In Central Asia more than 60% of drylands suffer from drought and desertification. Poor management and inefficient use of irrigation water has, in West Asia, led to soil acidification, erosion, salinisation and water logging.</p>	<p>* Infrastructural instability: Environmental hazards e.g. Droughts, economic problems, civil strife, war and refugees in Central Asia, the CIS and Eastern Europe putting greater pressures on their infrastructures and increasing the likelihood of chronic food insecurity in the regions.</p> <p>* Food safety: Growing concern over food safety amongst consumers linked to outbreaks of diseases e.g. BSE, foot and mouth, as well as growing concern about the safety of GMOs. The FAO &amp; WHO are evaluating the Codex Alimentarius Commission (FAO/WHO subsidiary body) work on food standards with view to strengthening this within the European Commission. Labelling is now required for GMOs in EC (also Japan and Switzerland)</p>
Latin America & Caribbean	<p>* Land degradation: This region has the world's largest reserves of arable land but unplanned expansion of cities, changes in agricultural practices and soil erosion have contributed to massive loss of productive land. Over 300 million hectares have been degraded by unsustainable land use.</p> <p>* Vulnerability: Drought and earthquakes in countries like El Salvador have damaged key infrastructure for food production. Localised damage, such as storms and droughts in Bolivia and economic instability, such as in Haiti, have led to the need for food assistance. There has been mixed regional performance in the agricultural sector due to poor climatic conditions and natural disasters e.g. El Niño and Hurricane Mitch. Nevertheless production has increased substantially. Greatest growth has been in Central America as compared to the Caribbean and Southern America.</p> <p>* Urbanisation: nearly 75% of the population is already urbanised. Levels are expected to reach 85% by the year 2025.</p> <p>* Depletion and destruction of forest resources: 5.8 million hectares lost 1990-1995. The region has largest reserves of cultivable land in the world but is severely threatened by soil erosion.</p>	<p>* Market-based land reforms: There have been long-term obstacles to agricultural (and broader) development due to inequity and imbalance in land ownership. 80 years of redistributive agrarian land reforms have been slow and uneven leaving the smallest landowners and landless out in cold. Land tenure is highly insecure. Appropriately designed land reform measures and integrated management strategies can significantly boost food production and rural incomes. The International Fund for Agricultural Development cites an example from El Salvador where a 10% rise in land ownership has boosted income by 4% per person. In Haiti integrated management plans, improved marketing, rural credit, research, technical support are all benefiting the agricultural sector.</p> <p>* Property rights remain poorly defined: Half of rural households lack land titles, hampering investment in productive activities and poverty alleviation, as well as the adoption of natural resource management strategies. There has been an upsurge in grass roots activities e.g. Zapatistas in Chiapas and rural landless workers in Brazil. There have been growing problems in illegal production activities where eco-</p>

## 2. CURRENT GLOBAL AND REGIONAL TRENDS

Current regional and global trends in issues relating to food security do not paint a pretty picture (Table 1). Looking at the present levels of global food production (Agriculture, fisheries, livestock), agriculture accounts for 75.5% of global food tonnage. It uses 37% of the world's land area and 70% of all water withdrawals (abstraction for irrigation is expected to grow by at least 14% by 2030). World agricultural output continues to increase year on year and the sector now trades to the value of \$600 billion annually. Fishing contributes just 6.6% of global food tonnage, but more than 30 million people worldwide depend on marine fisheries for their employment and income [7]. However, 60% of global fish stocks are over-fished and this overexploitation is creating diminishing rates of return. 11 of the world's 15 major ocean fishing areas and more than two thirds of ocean species are in decline [8]. 47-50% of major marine fish stocks are currently fully exploited; 10% depleted or recovering from depletion; 25-27% stocks under-exploited or moderately exploited [9].

Whilst food production has increased steadily in the last 10 years, there will need to be an increase of 100% by 2030 to meet the growth in demand. Future increases will have to come from the same amount of land and water that we currently use, if we are to avoid further destruction of biodiversity and harm to the environment. A combined approach tack-

ling consumption, as well as the production end of the food chain, is a part of the solution. Small scale and low cost technologies may be more of an answer than quick "technological" fixes which may carry uncertain risks of negative impacts (Madeley 2001).

### **3. ISSUES: PROGRESS AND CHALLENGES**

Whilst productivity is an important factor, the following section highlights how there are many other factors behind food insecurity. In the search for sustainable agricultural processes and rural development, it is important to note that for many people the management of agriculture, livestock and fisheries is not just about markets and food production. These industries are culturally very significant, they are tied to a way of life, involving the transfer of knowledge from generation to generation. These wider societal issues need to be considered in balance alongside the economic, political and environmental aspects when seeking solutions for better management of these resources [10]. According to the FAO, policies that raise the incomes of the poor, also accelerate agricultural productivity and food production, and they enhance the ability of a country to import food (by increasing its export earning possibilities). Each of these areas are important means to confront food insecurity in developing countries. Such interlinkages are addressed more fully below.

#### **3.1 Food Security and Social Issues**

Persistent hunger is a stumbling block towards eliminating poverty. Hunger is both a cause and a result of extreme poverty. As long as there is widespread hunger, little progress can be made in other aspects of poverty reduction and there is a weak foundation for broad-based economic growth, "*Hungry people are the poorest of the poor*" (FAO b 2001). The global cost of not eradicating hunger - in terms of increasing the risk of conflicts, recurrent emergencies, crime, drugs trade, economic stagnation, population migration and premature death - is enormous. It is in the interests of both poor and rich countries to work together.

##### *Poverty and under-nourishment/malnutrition*

The main international definition of under-nourishment is "*food intake that is insufficient to meet dietary energy requirements continuously.*" (FAO b 2001). More than 826 million people are undernourished globally. Only a fraction of these live in the developed world (34 million or 4%) compared to 792 million (96%) in developing countries. The proportion of undernourished people shows no sign of significant improvement. In 2001, the FAO Committee on Food Security reported that 16 of the 35 countries facing food emergencies that year were found in Sub-Saharan Africa, where more than 34% of the population are undernourished (1996-98), the same level as between 1969-71 [11]. Africa is the only region in the world in which the per capita food supply has diminished in the last 4 years. Nearly 200 million Africans are undernourished, largely due to the limited possibilities of production from domestic consumption and the poor organisational networks for distribution and markets. These figures are even more dramatic when considering the enormous impact HIV/AIDS has had and will have in the future. More than 24.5 million people are currently affected, which could take 20 million lives from the African farming community before 2020.

Sustainable progress in poverty eradication will be critical to improve access to adequate and safe food. Lack of income hinders both urban and rural communities from obtaining the range of food required for an adequate, balanced and healthy diet. Farmers in developing countries face greater risks and uncertainty in production, markets, financial, legal, institutional and human resources. Rural poverty is already spreading in these countries.

Farmers in industrialised countries have been affected in a different way, with diseases such as BSE and foot and mouth decimating animal herds and threatening the viability of farming operations, despite compensation schemes. Farming in industrial countries is already heavily subsidised, creating an artificial support for a declining industry, and there is increasing global pressure to wind down some of these subsidies in the call to improve the efficiency of global market practices.

Globally, as rural-urban migration continues to grow, rural cultures are under threat for where a choice of livelihood exists, children do not see a profitable future in farming.

Shifts in market value and global demand affects international food prices, and it is the producers that feel the effects most. For example, the international price for fish quadrupled during the 1990's, causing producers to leap on the bandwagon, selling their traditional fishery on the global market. Such changes can threaten the nutritional status of the poor, as they shift their subsistence fish diet to more affordable crops/foods such as cassava, which is both lower in protein

and lacking key nutrients. Neither does increased domestic food production based on mechanisation necessarily help poor producers, who often cannot afford to buy capital-intensive inputs. An alternative view, however, indicates that this outcome is not necessarily guaranteed, where it is argued that agricultural development and export led growth may act as a catalyst for investment and development in other sectors of the economy, providing jobs and income. In which case the key question to ask is which groups benefit from such growth, and which groups are excluded, and then examine how this occurs.

#### *Urbanisation and population growth*

The world's population in mid 2000 was 6.1 billion people and is growing by around 77 million people a year. Nearly 60% will be living in urban areas by 2025, and concentrated mainly in developing countries. The increasing number of poor people in cities makes food insecurity an "*extremely pressing social and political issue.*" (FAO 2001). FAO warns of increasing malnutrition amongst the urban poor if people's access to adequate and safe food is not improved. Already 60% of the world population depends on 30% of the world's land area, since urbanisation often means potential and existing croplands are lost to development. Rural-urban migration can also result in the loss of young, and often more educated, people who could have contributed to the enhancement of rural areas.

Urban agriculture tends to be a more informal practice, within poorer members of society. It can result in problems of water pollution and contamination of drinking water supplies, for example in squatter settlements. Urban consumers can often induce commodity shifts and changes in consumption as particular foods become popular e.g. switching to maize rather than sorghum in Sub-Saharan Africa. On a more global scale, the increased demand for organic produce in industrialised countries has been largely met by production and imports from the developing world. Yet global distribution remains unrealistically priced, not taking account of "externalities" or environmental and social costs of such shifts in demand, e.g. the impacts CO<sub>2</sub> emissions of increased air haulage of food (the 'food miles' issue) [12].

#### *Access to land and security of tenure*

Inadequate land tenure is still a major obstacle to ensuring sustainable agriculture and rural development. As alluded to above, the growth in large-scale, export-oriented production can exacerbate the marginalization of subsistence farmers, and encourage the further displacement of indigenous peoples. Increasing privatisation of land and natural resources associated with this shift, can also increase the process of urban migration.

Much of food production is oriented to the export market of cereals and grains. The ownership of land and the food industry lies increasingly in the hands of a small number of intensive farmers/producers, with the consequent social and environmental impacts. Facilitating a transition to small-scale production for local markets will require a change of land tenure which, as has been seen in Zimbabwe, can be a difficult process of change. However, in 1999 a study revealed that small farmers worldwide produce between 2 - 10 times more per unit area than larger, corporate farmers, not reflecting the larger industries' expected economies of scale [13]. The dominance of large-scale food producers and favoured global import/export markets is to the detriment of local and national sustainable food production and local food security.

Although men can be key workers in the agricultural sector, women remain the dominant producers of food in subsistence agriculture for developing countries. Statistics indicate that whilst 70% of economically active women in low-income food-deficit countries are employed in the agricultural sector, rural women only own around 1% of all the land. Women's access to and ownership of land is also limited in countries, such as Bangladesh, where men retain principle control over water resources (For further information, see forthcoming Stakeholder Forum briefing paper on land reform).

#### *Natural and human-induced insecurity*

Climate change is increasingly likely to create conditions of food insecurity, including erratic weather patterns such as drought and flooding, which reduce the certainty of crop production. According to Nicholls and Leatherman (1995) a 1m sea-level rise would affect more than 6 million people in Egypt, with 12%-15% of agricultural land lost, 13 million people in Bangladesh, with 16% of national rice production lost, 72 million people in China and 'tens of thousands' of hectares of agricultural land [14]. Non-climate related natural disasters such as earthquakes, floods or tsunamis can also drastically impact on food production, especially in agriculture-intensive countries.

#### *Food insecurity and conflict*

Conflict is the cause of deepest hunger in most of the poorest countries of the world. War disrupts infrastructure, transport and distribution systems, creating wider economic instability. Population structure is affected as mostly young men are called up to fight, and women are left to produce food crops. Displacement of rural farming communities is common. Long-term food supply is affected by looting of grain stores, and land mines result in large tracts of agricultural land becoming disused. The loss of vital infrastructure disrupts food distribution. The environmental consequences of conflict also impact on health, land resources and biodiversity, reducing the opportunities for recovery of food production after conflict. Emergency aid air-drops can result in population movement, distort food production and do not necessarily reach those in greatest need. Multilateral agreements are not implemented under conditions of poor governance. Instability associated with conflict drives corruption at all levels, from local landowners to undemocratic, unaccountable governments. Illegal cash crops e.g. opium, can be used to fund conflict and terrorism, since the high prices for drugs in the developed world provides income to buy military equipment.

### 3.2 Food Security and the Environment

Although certain studies argue that poorer people are frequently forced to seek food security at the cost of environmental degradation, other research indicates that the poor have a vested interest in preserving their natural resource base, both for reasons of food security and livelihood. The reality is probably something in between, depending on the degree of insecurity, opportunity and urgency of need (Saad 1999)

#### *Environmental degradation and pollution*

Degradation of agricultural land and declining soil fertility continue to be major threats to food security and sustainable development. Nearly 40% of the world's agricultural land is seriously degraded [15]. An estimated 500 million hectares of land has been affected by soil degradation since 1950, including as much as 65% of agricultural land. This directly impacts on the quantity and quality of food that can be produced in the long term and has lasting environmental implications. Modern agricultural production systems favour large farms, crop monocultures and mechanisation, often at the expense of ecological principles. Intensive agriculture requires higher inputs of pesticides and herbicides to guarantee against crop failure. Intensive farming reduces the amount of organic matter returned to the soil (called "nutrient mining"), decreasing productivity over time, whilst the leaching of nutrients creates a vicious circle demanding more and more pesticide and fertilizer application. Technologies associated with intensive farming methods are often ill-suited to the conditions (or needs) of farmers in the developing world.

#### *Water resources*

Population growth and overuse of water resources is exacerbating hydrological poverty. By 2050 more than 40% of the world's population may face water scarcity [16]. Agriculture consumes 70% of the freshwater withdrawn annually by humans. Water quality is affected by agricultural activities, fertiliser and pesticide runoff, salinisation and alkalinisation, and through other toxic substances which bio-accumulate affecting human health. Growing affluence is driving consumer demand, especially in urbanised areas of developing and developed countries, for more water-intensive fruit and vegetable crops. Many coastal habitats are also being degraded and polluted as a result of urbanisation and run off from intensive agricultural practices, which in turn is impacting entire marine food chains.

#### *Biodiversity and genetic resources*

Biological diversity exists in terms of ecosystems, species, and genetic variety. The complex web of inter-actions between different life-forms is increasingly being threatened by human-induced activities and pressures. Large-scale farming has caused the loss not only of wild plant and animal genetic resources, but has also influenced the ecosystem structure, due to monoculture crops, degrading of soil structure and intensive use of pesticides and herbicides.

Plant genetic resources are essential to sustain agriculture and food security for humanity now and in the future. FAO estimates that humans have used 10,000 species for food throughout history. Yet today, no more than 120 cultivated species provide around 90% of our food. This concentration of consumption has impacted the genetic viability of these cultivated species and in some cases led to their extinction.

Genetic modification (GM) has emerged worldwide as a critical and contentious issue. The UNDP Human Development Report 2001 concludes that many developing countries could reap great benefits from genetically-modified food, crops and other organisms (GMOs). It acknowledged that environmental and health risks need to be addressed but stressed the unique potential of GM techniques for creating virus-resistant, drought tolerant and nutrient enhanced crops. It argues that these crops could significantly reduce malnutrition and would be especially valuable for poor farmers working

marginal lands in Sub-Saharan Africa. The Report urges greater public investment in R&D to ensure that biotechnology meets the agricultural needs of the world's poor. According to the UNDP, examples of disease-resistant and drought tolerant rice, grown without the need for fertilisers and herbicides, demonstrate the potential of biotechnology to improve food security in Africa, Asia and Latin America.

However, concerns have been raised in this area with regards to existing weakness of international and national regulatory systems. Critics argue that the risks involved in releasing GMOs into the environment remain highly uncertain and unpredictable. Contamination and cross hybridisation of non-GM crops is of significant ethical and environmental concern, particularly for those farmers and consumers who would prefer to adopt a precautionary approach through selecting organically produced foods and livestock. Open and accountable consultations on the introduction of trial sites or GMO crop planting have also been lacking in many countries.

Potential social and cultural impacts of this new technology include the replacement of indigenous local crops. A number of countries (particularly in Latin America e.g. Mexico) already grow GM coffee and other modified crops. This is happening because of the potential benefits derived from increased productive capacity, lower fertiliser/feed inputs, as well as guaranteed better nutritional content in modified products e.g. 'Golden Rice' with its elevated levels of Vitamin A and iron. However, there are real moral questions about the wider impacts of establishing patented Intellectual Property Rights over living (modified) varieties of crops and animal species. Biotechnology companies have a vested interest in ensuring protection of their "created" products through royalties and user fees. However this approach raises moral issues about the patentability of life. Furthermore there are concerns around the fact that the patent can be used to monopolise selling and transaction of GM seeds, as well as the "necessary" by-products such as fertilisers and feeds. Cases have been cited of farmers being contractually required to destroy crop's seeds each year to ensure they buy new GM ones the following season, a practice that ties the farmer directly to the biotech company.

#### *Pests and pesticide impacts*

The spread of emergent diseases and invasive species has increased dramatically in recent years - assisted by the rapid rise in global trade and movements of people. It highlights the need for international action on trans-boundary pests and diseases, especially where there are significant implications for food security. Control and management requires co-operation between countries. Pest induced losses are more than 50% of attainable crop output. Factors affecting a country's ability to combat a disease include: globalisation; conflict/civil unrest making it harder to enforce quarantine, unregulated movement of people, increased smuggling, and deregulation of animal and health services. International legislation, such as the Persistent Organic Pollutants (POPs) Convention, seek to increase regulation and reduce transportation of hazardous and polluting substances in agriculture, e.g. dioxin.

### **3.3 Food Security and Economic Issues**

#### *Trade*

Trade-distorting measures and restrictions can adversely affect the distribution of food, and border measures can destabilise world food markets and be detrimental to food security. Just four multinational corporations control 90% of the world trade in cereals. Developing countries often rely on exportable products for foreign exchange earnings, which are vulnerable to unstable commodity prices. Economies that are largely dependent on their agricultural or fishing industry are even more vulnerable to shifts in global prices and markets – with impacts right down the production chain e.g. farm/fleet jobs, processing, distribution and supply. Alternatively a number of other countries are dependent on food imports and subject to the fluctuations on the markets.

The current agricultural policies in industrialised nations tend to encourage surplus production e.g. resulting in butter mountains and wine lakes. Governments then shield the domestic producers from making a loss by moving or "dumping" surpluses onto the world market at subsidised prices, which has the effect of reducing global commodity prices. Subsidies can promote this over-production, whilst price guarantees tend to favour large farmers and further distort markets. The cost to consumers from such agricultural protectionism has been calculated by the OECD to be approximately US\$ 188 billion [17]. This protectionism can arise from a bias in international trade agreements. Also poor implementation of trade liberalisation has resulted in unequal distribution of benefits, particularly where countries have rushed through opening of markets before adequate regulatory controls were in place to ensure that the domestic economies and people were adequately protected. Free trade of foodstuffs is something of a misnomer - market access is restricted by tariffs, World Trade Organisation (WTO) rules and agreements on Agriculture and Trade Related Intellectual Property Rights (TRIPS). Copyrights, trademarks and patents are biased in favour of those groups who are more trade literate, including the industrialised countries and multinational agribusiness corporations. Groups like Oxfam have

raised the concern that whilst trade has the potential to make a substantial contribution to poverty reduction, the industrialised nations continue to enjoy a disproportionate share of the benefits of trade. The world's major trading powers (the USA, the EU, Japan and Canada) currently account for around 60% of world trade, whereas the least developed countries account for a tiny and declining share of less than 0.5% (Oxfam 2001).

As has been previously mentioned globalisation and opening of markets can divert food production from local and national markets towards the production of "cash crops" for export. Cash crops then get sold on to the industrialised world through international deals, earning foreign exchange. Thus consumption patterns in the industrial countries affects food production patterns worldwide. For example in the UK, 98% of grocery shopping is purchased from the major supermarket chains, which have a huge influence over the supply of intermediate products and foods through their product sourcing.

#### *Finance aid and food*

Food insecurity has significant economic impacts, both directly to gross domestic product (GDP) and indirectly, through the wider effects of problems such as malnutrition. FAO report a 48% decline in ODA to agriculture during the 1990's. This is partly attributable to declining assistance from multi-lateral donors, especially from the World Bank (FAO). Some bilateral donors have significantly increased their commitments to aid – including Australia, Austria, Denmark, Norway and the UK - but others have significantly dropped theirs - France, Germany, Japan, Netherlands and Sweden. However it is important to note that Japan remains by far the largest donor (41% of aid). The June 2002 World Food Summit Review called for multi-lateral and bilateral aid donors and international organisations to honour their WFS Commitments.

There have been numerous concerns attached to how and under what scenarios food aid is delivered, to ensure it is effective and does not result in institutionalising food aid dependency. Development groups are increasingly recognising that medium to long-term aid strategies need to be based on an approach which is based on local empowerment and involvement, building local capacity for self-sufficiency.

## **4. SOLUTIONS AND PARTNERSHIPS- BUILDING FOOD SECURITY**

The challenge in achieving food security are many: to reduce poverty, increase food security without further degrading natural resources, and to cope with population growth, rising incomes and urbanisation. The challenge can be seen on two levels. Firstly, to achieve subsistence or basic food security requires provision of the main dietary requirements to a population. Food security should aim to safeguard the rights and interests of local communities, allowing each individual the basic human right to have access to food. Secondly, achieving food security must also contribute to sustainable agriculture, rural development and the achievement of sustainable production and consumption. Some broad proposals for enhancing food security, proposed by various stakeholders, are outlined below.

### **4.1 Multilateral Environmental Agreements**

Several key international environmental agreements contribute to supporting food security by providing global frameworks to ensure some minimum protection and maintenance of the natural environment. There are also key regional agreements which should be developed further e.g. The Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Further work needs to be done to support further ratification, implementation and monitoring of these key agreements including:

- Ratification of existing legislation and further implementation of agreements, including: FAO agreements, such as the International Plant Protection Convention (revised in 1997), international standards for phytosanitary measures (1995-2000, includes guidelines for pest risk analysis), 1993 FAO Compliance Agreement; 1995 UN Highly Migratory and Transboundary Fish Stocks Agreement, the UN Conventions on Biological Diversity, Climate Change, Convention to Combat Desertification, Convention on Trade in Dangerous Chemicals and Pesticides (PIC) and Stockholm Convention on Persistent Organic Pollutants (POPs) and their associated protocols, Ramsar, CITES, International Agreement on Plant Genetic Resources.
- Legislation should be revised, as necessary, to close loopholes.
- Clarification is needed regarding relationship between the UN Multi-Lateral Environmental Agreements (MEAs) e.g. Biosafety Protocol and Trade agreements e.g. TRIPS and the WTO agricultural agreement.
- Strengthening of international criminal law e.g. CITES (Convention against the illegal trade of endangered species), Illegal, Unreported, Unmonitored (IUU) fishing arising from excess fleet capacity, weak national administration, subsidies, market demand and ineffective monitoring and control.
- Policy formulation and support: The World Bank Food Security Strategy supports government strategies and policies that support investment and growth and which do not discriminate against agriculture or small farms.
- Technical and Financial Support: Investing in international, regional, national and local activities with reference to infrastruc-



ture, roads, telecommunications, electricity, irrigation, supporting people through health, educational and nutritional programmes.

#### 4.2 Trade

It remains vital to encourage open and fair international trading system and stable access to international markets, whilst also allowing for self-determination of production methods and ensuring protection of domestic crops e.g. through co-operative associations. Food security is thought to be a non-trade concern since, in order to preserve national food security, it requires building up domestic production in many countries. It is therefore legitimate to expect such activities to be given exceptional treatment by the WTO e.g. exemptions on domestic and import measures to allow countries to establish production-related measures to meet self-sufficiency goals. Food security is also linked to broader development concerns that the WTO needs to take account of. The self-sufficiency argument isn't universal e.g. the US and Cairns group say it is also based on the ability to purchase food, and therefore markets should not be further distorted (FAO). This is an area that needs to be further clarified in the new Doha trade round.

Although some industrial countries want a complete elimination of WTO exemptions for agriculture, the WTO Agreement on Agriculture allows for "Special and Differentiated treatment" of developing countries. Article 10.4 (GATT) allows for direct food aid, reflecting the fact that member states can face problems of underdevelopment and food insecurity that necessitates specific privileges in the trading system. Developing countries, subject to chronic or transitory food insecurity, therefore require international support for their domestic agricultural production to better deal with food insecurity problems. Overall, developing countries' capacity to participate in international trade is limited. Therefore, the prospects of trade stimulating economic growth in agrarian countries is not very significant in the short to medium term i.e. they will require extra protection of their domestic markets (trade tariffs on specific products to safeguard against cheap imports).

- *Subsidies and Tariffs:* Some developing countries are calling for an elimination of agricultural export subsidies and domestic support granted by industrial countries, and improved market access to industrial countries through reduced tariffs. Article 6.2 of the agreement on agriculture exempts specific domestic support measures from reduction requirements. With reference to the least developed countries, the EU recommends the establishment of duty free access opportunities for products from these countries. There has to be improved transparency of individual countries' agricultural policies, towards a wider process of reform.
- *Unsustainable subsidies:* Subsidies should exist as direct income payments to farmers in disadvantaged regions, or to those affected by structural adjustment, or for provision of environmental benefits. Subsidies which support unsustainable food systems, including domestic and export subsidies in OECD countries and tariff and non-tariff barriers to imports from developing countries should be phased out [18]. Where subsidy removal is openly agreed, measures should be taken to ensure safety nets are in place to protect dependent communities. Notable subsidies include the EU's Common Agricultural Policy (CAP). This is a barrier to the access of developing countries to our markets. UNCTAD has estimated that the agricultural policies of the OECD countries cost developing countries some \$20 billion per year. Similarly the Common Fisheries Policy (CFP) subsidises the EU fishing industry, contributing to problems of over-fishing. The need for CAP/CFP reform has been long recognised but equally long to gain real political support.
- *Incorporate non-trade related proposals into trade negotiations:* Domestic food production can have benefits beyond food supply, including preservation of the environment, which will only continue if the exempted role of agriculture agreement is maintained. Remove genetic resources for food and agriculture from the TRIPS agreement (Consumers International)
- *Cleaner technology assistance:* Developing countries may require assistance towards cleaner, possibly costly technologies, e.g. implementing regulation on agro-toxins, this will require international support. Reform national economic indicators of the agricultural sector needs to reflect depletion and degradation of natural resources (World Resources Institute)
- *Research into the broader consequences of globalisation:* Research would include assessing the environmental costs of increase transportation of food stuffs, social impacts from changes in the domestic economy and seeking appropriate means to internalise these costs e.g. carbon tax for transportation.

#### 4.3 Poverty eradication, land tenure and finance

Lack of economic access to food is one of the critical constraints to eradicating hunger. The 1996 World Food Summit called for equitable development strategies to reduce poverty, putting an emphasis on social justice and the achievement of better nutrition for all, especially vulnerable groups and marginalised groups - women, children, elderly, indigenous, disabled and refugees. Proposals included:

- *Agrarian reform:* Appreciation and support for small and medium-sized producers, participation of communities. Agrarian reforms to guarantee individual and collective rights of producers over shared lands.
- *Property rights/land tenure:* Look to shift to a rights-based management approach where there is fair distribution of property rights over land and water resources. Whilst governments, donors and NGOs recognise the contribution of women, research suggests this important role is not typically supported by land tenure and property rights policy. Sustainable production methods should be implemented according to needs of local conditions, markets and consumer demands.

- *Increasing ODA*: Targeted toward the local level, enhancing debt relief for least developed countries and heavily indebted transitional economies. Aid should be untied from commercial interest within donor countries.
- *Social safety nets*: Credit unions/microcredit schemes to empower marginalized groups to change unsustainable practices e. g. those in poverty/women/indigenous communities/vulnerable communities.
- *Risk management options*: Support more vulnerable farmers through assessment and provision of market and weather information, crop insurance, debt restructuring, and shifting from disaster relief to early warning systems to ensure, as far as possible action well in advance of food emergencies, as well as develop contingency plans to tackle emergencies.
- *Private finance and practice in agriculture* could be regulated through an international TNC framework convention and enhanced national regulation.
- *Removal of environmentally perverse subsidies* in industrialised countries should be implemented in consultation with farming communities and retailers.

#### 4. 4 Natural Resources Management

The 1996 World Food Summit called for environmentally sound policies and better utilisation of natural resources to meet nutritional and other needs of a growing population, without jeopardising the capacity to meet the needs of future generations. The aims and measures remain valid to this day, including:

- *SARD Plans*: Environmental Action Plans (part of the wider National Sustainable Development Strategies) should incorporate FAO Sustainable Agriculture and Rural Development (SARD) plans for local and sub-national farming and rural development.
- *Adopt an ecosystems approach to agricultural production*: Management for enhanced soil productivity e.g. terracing, rotational patterns, fallow periods, protection of biological diversity and productivity, integrating sound pest management systems into agriculture, forestry and animal health; developing techniques to improve livestock, rangeland and pasture for arid and semi-arid regions; developing links between forestry and agro-forestry to agricultural and environmental concerns (World Bank).
- *Reduce over-intensive farming production*: Removal of environmentally perverse subsidies or re-orientation to an ecosystem management approach. Finding alternative approaches e.g. removing farming subsidies that encourage tree removal whilst encouraging alternative practices, such as agroforestry that allows maintenance of forest whilst ensuring sustenance and income generation through production of foods suitable to a forested environment. This requires training and capacity building, as well as participation of local communities, to ensure ownership and skills are in place to develop alternatives.
- *Farm stewardship schemes and closed farming systems for soil and water conservation*: Measures include re-introduction of wildflower borders and hedges, promotion and exchange of good practice in natural pesticide management, crop rotation and inter-cropping practices.
- *Limiting unnecessary applications of pesticides and herbicides*: Precise field mapping to target use of nutrients/pesticides/herbicides.
- *Polluter Pays Principle*: This principle should be commonly applied, including through the adoption of national legislation on environmental liability, to ensure that the cost of remediation/prevention of environmental degradation and damage is paid for by the polluter.
- *Integrated water resource management*: Enhanced management at the watershed and river basin level requires greater cross-co-ordination between countries, through Regional Water Management agreements. It also means building local responsibility at the community level.
- *Increasing appropriate technologies for water conservation*: Increased efficiency can be gained through water recycling and rain-water harvesting. Recycled treated wastewater (grey-water) can also be used as a viable resource for agriculture.
- *Fisheries and habitat management*: establishing and maintaining further marine protected areas (as opposed to the traditional single species approach); reduced fishing intensity, where appropriate, by regulating deep water fisheries (North-East Atlantic Fisheries Commission), introducing/extending 'no-take' zones around key fishery habitats (e.g. nursery and spawning areas), and no-fishing seasons to allow key fish stocks to recover; monitoring effects of particular types of fishing gear to catch only non-spawning fish; introducing new measures to address Illegal, Unreported and Unregulated fishing (e.g. monitoring and information sharing between countries; promote flag state responsibility; investigate sanctions/penalty scheme e. g. denial of port access, de-registration of vessels; close ports, markets, companies to FOC fishing and vessels (Greenpeace).
- *Transition to responsible fisheries*: Measures should address the decrease in employment in the communities that will be most directly affected (share-workers in harvest fisheries and women in coastal processing plants). Governments need to invest in re-training and other labour market and education programmes [19] Post-harvest sector (processing, distribution, sales and retailing) management is an important part of the transition to responsible fisheries - national implementation of FAO Code of Conduct (Article 11), government standards and consumer education necessary. (For further information also see Oceans Briefing sheet)

#### Biodiversity and genetic modification

- *Precautionary principle*: Broader application of precaution is required in regulatory policy. Due to uncertainty of risk, new technologies should not be presumed safe, even where there is not sufficient scientific evidence to prove otherwise. Governments and industry need to take a balanced approach and also consider existing and novel alternatives to GMOs. The process of selecting suitable and sustainable technologies should be carried out in an open and participative way. Ethical consid-

erations of relevance to food security and rural development require diligence by the FAO.

- *Enhancing food nutrition.* GMOs should be viewed as a complement to other interventions (fortification, supplementation) and not the only alternative. For example, whilst Golden Rice is more cost effective than fortified wheat flour in delivering Vitamin A to intended beneficiaries (and wider adoption could make it cheaper), it is still only part of a package of tools that might be used.

#### 4.5 Education, capacity building and participation

Education, as one of the main pillars of human development and a major factor in agricultural development, requires substantial investment. Primary education and literacy, combined with training in basic skills has been shown to have an immediate and positive impact on farmers' productivity. Increased participation by all stakeholder sectors is a prerequisite for improving food production and sustaining access to food, as well as adequate nutritional programmes and projects. In addition, education and training aiming at building gender equality is a prerequisite for the eradication of poverty, and increased food security. The World Food Summit Review (June 2002) called for action to ensure that women have equal access to resources, such as land, water, credit and technology, and that they can participate fully in decision-making. Actions include:

- *Increasing participation:* Increased capacity building and efforts to involve local communities and especially the poor, in designing, implementing and monitoring projects. Involves sharing knowledge and good practice examples (World Bank Food Security Strategy).
- *Education:* Developing and supporting vocational schools to train and educate around sustainable food principles (e.g. Crop Life)
- *Technical and financial support:* such as through donor country support of bodies like the FAO Technical Cooperation Programme (TCP) which allocates resources to aid agriculture, fisheries and forestry sectors and rural development.

### 5. THE WAY FORWARD - WORKING TOWARDS FOOD SECURITY

This section outlines actual and potential institutional roles and responsibilities, looks briefly at some international monitoring processes and indicators, and concludes with a review of the challenges faced on moving towards enhanced food security (Table 2).

#### 5.1 Monitoring International Processes

The UN Millennium Goals include the World Food Summit goal "to halve, by the year 2015 the proportion of people who suffer from hunger", as well as indicators to monitor progress on the number and proportion of undernourished. And a further Millennium Goal indicator focuses on child malnutrition. These targets will need to be monitored at interim points to ensure that progress is being made and, if not, a better understanding of why progress is not taking place.

There are official differences of opinion about the best means of measuring under-nourishment and food insecurity. The FAO's easy-to-use measure of under-nourishment has the advantage that it is calculated every year in a consistent way for all countries. It is based on the distribution of the dietary energy supply within a country's population. This measure is used to estimate the number and proportion of undernourished annually. Results are reported as a 3 year moving average to the Committee on World Food Security and the annual FAO publication: the State of Food Insecurity in the World (SOFI)

The Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) was set up in response to the 1996 World Food Summit commitment on the need to gather consolidated information on the magnitude of food insecurity and food vulnerability at the local, national, regional and global levels. Food security indicators and methodologies for mapping at the national level, will be reviewed by an international FAO meeting at the end of June 2002.

The FAO Committee on the World Food Summit is responsible for monitoring, evaluating and consulting on the international food security situation. This includes assessing food needs, availability, monitoring and disseminating information on stock levels. Assessment has been enhanced by increasing the number of characteristics of people who are defined as food insecure and vulnerable, in addition to more structured monitoring and reporting, including the use of Food Security Indicators, such as these established in the UN CSD process:

- *Social Indicators:* Dietary composition; Poverty index; Food prices; Meal frequency; Mortality rates; Access to health services and family planning; Access to potable water and sanitation; Education; literacy; Gender division of labour.
- *Economic Indicators:* Income distribution and purchasing power; Trade position and terms of trade; External Debt; Private capital flow; ODA.

Table 2. Stakeholder roles and responsibilities

Type of Stakeholder	Roles and responsibilities
International Institutions	<ul style="list-style-type: none"> <li>• Implementation and monitoring of the WFS Plan of Action at all levels in co-operation with the international community.</li> <li>• FAO Special Programme for Food Security: Focused on Low-Income Food Deficit Countries (least able to meet their food needs with imports). Ensure enabling conditions, investing in food security, work with stakeholders such as farmers to identify and remove constraints, and demonstrate ways of increasing production.</li> <li>• EU CAP &amp; CFP reform: Eliminate subsidies that encourage natural resources degradation, commodity surpluses, overproduction etc.</li> <li>• WTO trade talks should include the issue of multi-functionality e.g. animal welfare, value of rural landscapes, ecosystems. Re-focus negotiations so that "developing countries have a greater opportunity to participate in international commerce." Careful monitoring of the impact of the decisions of the WTO in African agriculture and support for preservation methods of indigenous foods FAO (Feb 2002). The WTO's Agreement on Agriculture should include commitment to the "right-to-food approach, stressing human rights, non-discrimination and encouraging affirmative action for the poor, allowing certain special trade rules for the protection of vulnerable people and countries (Mary Robinson, UN High Commissioner for Human Rights, June 2002)</li> <li>• Strengthen the World Food Programme Food Insecurity and Vulnerability Mapping System: Encourage national/international development of linked information mechanisms.</li> <li>• Stronger and coherent institutional and legal frame works, with multi-stakeholder participation, are needed, including more co-ordination between intergovernmental bodies, regional agriculture &amp; fisheries management organisations, local authorities, trade unions, indigenous peoples, women's groups, faith communities, farmers, industry and NGOs.</li> <li>• Data and best practice information, research and dissemination e.g. FAO South-South co-operation initiative: exchange of knowledge and experience between 14 developing countries.</li> <li>• Translating research into policy and implementation programmes e.g. EU biodiversity action plan (adopted June 2001).</li> <li>• Development of sustainability indicators e.g. OECD 13 Agri-environmental indicators to use in modelling scenarios of agricultural markets and policies; FAO Fisheries management Sustainable Development Reference System (SDRS)</li> <li>• Adequate resources - financial, technical and in-kind resources needed for implementation of programmes and projects.</li> <li>• Free and fair trade, re-negotiation and cancellation of debt, increased Overseas Development Assistance (ODA) with developed countries honouring their commitment to dedicate 0.7% of GDP to ODA and economic assistance to build regional and global economic security.</li> <li>• Balance macro-economic policy with food security needs, to minimise possible adverse impacts of HIPC, SAPs, implement transitory measures where impacts are unavoidable to alleviate hardships. International lending needs to be further assessed to ensure long term maintenance of food security and building of food supplies</li> </ul>
Government & local government	<ul style="list-style-type: none"> <li>• Ratify international environment and development agreements and implement legal mechanisms</li> <li>• Institutional investment and enhancement to better support small and marginal farmers</li> <li>• Land tenure: Policy makers need to identify and support vulnerable groups at community (particularly women) and household levels and initiate a plan of action to build greater equality (World Bank, IFAD, Popular Coalition).</li> <li>• Capacity building: Promote generation of better technology and processes through support for Consultative Group on International Agricultural Research and national agricultural research systems and getting information to farmers. Building local capacity to monitor and influence changes (World Bank)</li> <li>• Develop policies to bolster a country's market-orientated agricultural production (replacing imports of particular products which a country could produce itself) thus increasing self-reliance, and boosting exports of other agricultural products.</li> <li>• Develop Emergency Preparedness strategies for natural disasters etc.</li> <li>• Supply aid to countries hit by natural disasters including drought &amp; floods.</li> <li>• Investment in more public agricultural research (little private sector research is relevant to developing world as this is not seen as profit generating nor are public-private partnerships used as a means of influencing private sector research focus)</li> <li>• Health programmes: Assist in enhancing the welfare of food producers, food standards etc</li> <li>• Promote Environmental Impact Assessment (EIA) as part of sustainability assessment for new farming (land-based or aquatic) developments.</li> <li>• International co-operation in control and surveillance of IUU fishing</li> <li>• Implement the dietary and nutritional policies of the country.</li> <li>• Encourage measures that foster partnerships between producers and consumers</li> <li>• Develop policies tackling rural unemployment issues and human development</li> <li>• Promote effective stakeholder participation and partnerships between producers and consumers</li> </ul>
NGOs	<p>NGO's identified five strategic issues for the World Food Summit Review: Right to Food; Food Sovereignty; Agricultural Production Models; Access to Resources; Democracy and civil society involvement. A parallel event, the Forum for Food Sovereignty was held to consider these topics and to report back. The Forum also discussed an international code of conduct concerning the right to adequate food, proposed by several NGO's, including FoodFirst Information &amp; Action Network (FIAN) and World Alliance for Nutrition and Human Rights. The text, already agreed by more than 800 NGOs worldwide, aims to specify obligations at the national and international level, and to outline responsibilities of other actors within civil society.</p> <ul style="list-style-type: none"> <li>• Advocacy: NGOs have a key role in informing public opinion &amp; media.</li> <li>• Policy formulation: NGOs &amp; civil society must play a broader role in ensuring more balanced and fair policy development.</li> <li>• Monitoring role: As an example, the Global Food Policy Project IATP monitors the impacts of national and international policies, such as the General Agreement on Tariffs and Trade (now WTO), the North American Free Trade Agreement (NAFTA), and national agricultural legislation on food security.</li> <li>• Research and good practice: e.g. encourage and implement appropriate technology to improve resource productivity/efficiency</li> <li>• Capacity building: Market information to judge how much to pay for ethical/fair trade products rather than accepting misleading prices; education; Studies of effective field programmes; broader shift to more emphasis on grassroots organisations</li> <li>• Increasing public awareness on rural development needs and food security</li> </ul>

Table 2. Stakeholder roles and responsibilities (continued)

Type of Stakeholder	Roles and responsibilities
Farming Community/ Indigenous Peoples	<ul style="list-style-type: none"> <li>• Greater participation in national policy-making processes e.g. definition and allocation of land rights</li> <li>• Transfer of appropriate technologies e.g. Integrated Crop Management (ICM), to prevent, rather than cure, nutrient deficiencies, pest outbreaks or soil erosion</li> <li>• Transfer and protection of indigenous knowledge of land, resources and environmental management</li> <li>• Monitoring control and enforcement systems for ensuring labour standards and environmental efficiency e.g. Global Crop Protection Federation (GCPF) 'Safe Use Initiative' to promote the safe use and handling of crop protection products</li> <li>• Local common property and community-based farming systems e.g. Sustainable Community Orientated Development Programme - a West Kenyan project for sustainable livelihoods and food security in small scale farmers (Crop Life)</li> <li>• Education and training: Includes independent information service, training of farmers and agricultural workers, and training of trainers</li> </ul>
Trade Unions	<ul style="list-style-type: none"> <li>• Stakeholder participation to inform policy making</li> <li>• Labour standards and principles to protect social welfare, especially in food production, health &amp; safety</li> <li>• Enhancing corporate conduct, and performance internally and externally, through labour consultation and bringing good practice into the workplace</li> </ul>
Business (SMEs and TNCs)	<ul style="list-style-type: none"> <li>• Co-operation with farmers, governments, trade unions, NGOs and other groups is needed to develop appropriate technologies. Technologies must be developed in a participatory way, must be risk averting, cheap and accessible, adapted to marginal areas and health and environment enhancing.</li> <li>• Integrated farming systems: should be promoted, through research and development, a mixture of modern and traditional methods, and maintain a basic standard of 'best agricultural practices'.</li> <li>• Research sustainable methodologies, codes of conduct, full sustainability Life cycle assessments and reporting of production standards to consumer information should be adopted e.g. Unilever Sustainable Agriculture Programme, Marine Stewardship Council, GRI reporting systems</li> <li>• Support technology transfer: e.g. Aventis Foundation Private/public knowledge transfer through research institutions e.g. French Center for International Cooperation in Agronomic Research for Development (CIRAD)</li> </ul>

- *Environment Indicators:* Natural: Water availability and quality; Forest resource access; Soil quality; Rainfall levels; Crop diversity; Yield; Area in fallow. Physical: Livestock ownership; Land tenure, access and control.

After both the World Food Summit 1996 and the follow up in June 2002, critics noted the lack of new thinking, no fresh commitments for aid and no legally binding outcomes. Implementation and monitoring of the Plan of Action was left up to individual states. Key outcomes of the *World Food Summit: five years later* in June 2002 did include:

- *International target:* 182 countries renewed their commitment to reduce by half the number of hungry people in the world no later than 2015 (a UN Millennium Goal). The final Declaration called on governments, international organisations, civil society organisations and the private sector to "reinforce their efforts so as to act as an international alliance against hunger."
- *International Treaty on Plant Genetic Resources for Food and Agriculture:* 45 new signatories to the International Treaty on Plant Genetic Resources for Food and Agriculture, bringing the total number of signatories to 56 (35 developing countries, 20 developed and the European Community). The objectives of the Treaty, adopted in November 2001, are the conservation of plant genetic resources, their sustainable use, and the fair and equitable sharing of benefits arising from their use, including monetary benefits, resulting from commercialisation. The binding Treaty provides for farmers' rights, and establishes a multi-lateral system to exchange the genetic resources of some 64 major crops and forages important for global food security. More signatories were called for, so that it could come into force as soon as possible.
- *Right to adequate food:* The Council of the UN FAO is to draw up, over the next two years, "a set of voluntary guidelines to support Member States' efforts to achieve the progressive realisation of the right to adequate food."
- *ODA:* The Declaration urged "developed countries that have not done so to make concrete efforts towards the target of 0.7 percent of gross national product (GNP) as official development assistance (ODA) to developing countries."
- *HIPC:* The Declaration stresses that a "speedy, effective and full implementation of the Heavily Indebted Poor Countries (HIPC) Initiative, which should be fully financed through additional resources, is critical."
- *Trade:* All countries are urged to implement the outcome of the Doha Conference regarding the reform of the international agricultural trading system.
- *NEPAD:* The adoption of the New Partnership for Africa's Development (NEPAD), and the inclusion of agriculture and food security as a component of this initiative were welcomed. The international community is encouraged to respond by financing programmes or projects reflecting NEPAD's commitments to resolving endemic problems of poverty and under-development in Africa.
- *Streamlining:* Governments were urged to "review their ongoing national food security policies with a view to filling the gaps, identifying new initiatives, removing implementation obstacles and streamlining inter-ministerial and inter-departmental policy initiatives".
- *Research:* FAO, in conjunction with CGIAR and other international research institutes, should advance agricultural research, especially research into new technologies, including biotechnology "We are committed to study, share and facilitate the responsible use of biotechnology in addressing development needs".
- *Gender equality:* Re-statement of the need to assure gender equality and measures to support the empowerment of women in agriculture, given their vital yet often under-recognised role.
- *Nutritional and Safe food:* The need for addressing nutritionally adequate and safe food, and highlighting the need for atten-

tion to nutritional issues was emphasised as an integral part of addressing food security.

- *Emergencies:* The Declaration called for measures to "strengthen national and international action to prepare for contingencies and emergencies and to improve the effectiveness of emergency actions both through food and non-food intervention. These actions must be integrated into sustainable development efforts will all stakeholders involved to achieve sustainable food security." The importance of developing social protection measures, in particular safety nets for vulnerable and food insecure households was stressed, as well as the development of effective early warning systems and emergency assistance to avoid famine.

In April 2002, the FAO called on all stakeholders to support the Strategies for National Agricultural Development Horizon 2010. Initially prepared for the 1996 Food Summit (WFS), the Strategies provided a framework for the major actions needed between 1997 to 2010 to carry out the commitments of the WFS Plan of Action and in particular, to foster agricultural development with an emphasis on enhancing food security. An update process was conducted during 1999-2001, involving a diverse number of stakeholders, including Government, farmers organizations, NGOs, research and academic institutions, consumer associations, parliamentarians and donors. By April 2002, approximately 80 countries had finished their review process, analysing principal limitations, challenges, goals and policies to boost agricultural development and reach acceptable levels of food security by 2010. FAO called for a broad International Alliance against Hunger and has prepared a first draft of an Anti-Hunger Programme (May 2002) that proposes a twin-track approach combining 1) resource mobilisation for agricultural and rural development which creates greater opportunities for the poor and hungry to improve their livelihoods, with 2) measures to meet immediate food and nutrition needs of the seriously under-nourished. It calls for greater public investment of some \$24 billion annually in 5 inter-related action areas:

- Improvement of farm productivity in poor rural communities
- Development and conservation of natural resources
- Improve rural infrastructure and market access
- Strengthening of knowledge generation, learning and information; and
- Ensuring access to food for the most needy.

## **6. CONCLUSION**

"Hunger and malnutrition are unacceptable in a world that has both the knowledge and resources to end this human tragedy." (FAO 2002).

The publication of UNEP's Global Environmental Outlook (GEO3) May 2002, with its 4 scenarios for the next 30 years, provides clear evidence that human vulnerability to environmental change is growing at a rate that is seriously detracting from decades of development. GEO3 issues a stark reminder that we must drastically increase our efforts to address global challenges of desertification, climate change and biodiversity. Agriculture has to be transformed to promote sustainable food security for the hungry of the world. One sixth of humanity already lives a marginalized existence. 40,000 people die from hunger-related causes every day. Urban pressures will continue to squeeze and impact on productive land resources. It now clear that meeting the 1996 World Food Summit pledge to cut the number of malnourished people in the world by half will require "far-reaching changes in the way hunger and malnutrition are addressed. Fine words and promises must now be matched by unwavering political will, adequate resources and sustained actions." (FAO 2002).

In May 2002, Kofi Annan, Secretary-General of the UN, stated that tackling food security and sustainable agriculture (along with energy, biodiversity, health, and water and sanitation) was a critical issue for the World Summit on Sustainable Development in Johannesburg, South Africa. He argues that now is the time to "move from commitments...to concrete results which are both essential and achievable.". The Johannesburg Summit provides an opportunity to highlight some of the critical issues tied to Food Insecurity. By establishing a clear global strategy to tackle this most basic need, Governments and stakeholders can make a real contribution to the wider context of long-term sustainable development of the planet. Food insecurity - when people live with hunger and fear starvation - doesn't meet the vision of a sustainable world. Can we live up to the promise - the right to food for all – to a world free from hunger?

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