

## **THE WORLD FOOD SITUATION AND A 2020 VISION**

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### **INTRODUCTION**

About 800 million people in the developing world, 20 percent of the population, are food insecure; about 185 million preschool children are underweight; and many hundreds of millions of people suffered from diseases of hunger and malnutrition (UN ACC/SCN, 1992). During the next 25 years, about 90 million people are expected to be added to the world's population annually, increasing it by 2.3 billion to reach 8 billion in 2020 (UN, 1993). This article addresses the question of whether and how food security can be assured, not only for the current world population but also for the large population increases.

Food insecurity is a major consequence of poverty, which is significant and persistent in many developing countries. An estimated 1.1 billion people live in households that earn a dollar a day or less per person. Fifty percent of these absolutely poor people live in South Asia, 19 percent in Sub-Saharan Africa, 15 percent in East Asia, and 10 percent in Latin America and the Caribbean. Almost one-half of the population of South Asia and Sub-Saharan Africa, and one-third of the Middle East and North Africa, live in poverty.

Food security is jointly determined by availability of food and access to food. Turning to availability of food, food production growth in recent decades has been impressive. During the period 1961-93, cereal production worldwide more than doubled from 877 million tons to 1.894 million tons; in developing countries it almost tripled from 396 million tons to 1.089 million tons (FAO, 1994). Between 1979-81 and 1991-93, food production worldwide increased by 29 percent. In developing countries as a group, food production increased 49 percent, with particularly large increases of 689 percent in China. Even in Africa developing countries, where concerns regarding the future food situation are greatest, food production increased 39 percent.

However, food production growth barely kept up with population growth. Per capita food production for the world increased by less than five percent between 1979-81 and 1991-93, while in developing countries it increased by 16 percent. Food production performance varied widely among regions; while per capita food production increased by 42 percent in China and by 25 percent in Asian developing countries, less food was produced per person in developing African countries during 1991-93 than in 1979-81. The least-developed countries experienced a 9.9 percent reduction in food production per capita. Growth in food production did not keep pace with population growth in 56 developing

countries. Thus, the encouraging global food production trends are, upon further examination, somewhat less encouraging in terms of their implications for food security.

Of note on the food production front is the role of yield increases, which have been the source of 92 percent of the increased cereal production in the developing world between 1961 and 1990; area expansion contributed only 8 percent (World Bank 1992). While cultivated area is still increasing in most developing countries, it is doing so at a low and declining rate. Yield trends in developing countries climbed steadily upward for the three major cereals of rice, maize, and wheat between the 1960s and late 1980s, particularly in Asia where during 1961-91 maize yields almost tripled from 1.2 tons to 3.4 tons per hectare, wheat yields increased five-fold from 0.5 tons to 2.5 tons per hectare, and rice yields doubled from 1.7 tons to 3.6 tons per hectare (FAO 1982). In Africa, however, yield performances of major cereals have been poor and variable; Africa has a long way to go to catch up with Asian yields.

However, yield growth rates in some areas are stagnating and, in a few cases, falling. In Asia, for instance, the annual rate of increase in rice yield has declined from about 3 percent between the mid-1970s and early 1980s to less than 2 percent in the late 1980s (Rosegrant and Svendsen 1993); since 1989, rice yields have stagnated at around 3.6 tons per hectare (FAO, 1992). Annual yield growth for wheat in Asia have also slowed from 6.2 percent in the early 1960s to 2.7 percent in the 1980s (Rosegrant and Svendsen 1993); since 1989, wheat yields have remained around 2.5 tons per hectare (FAO, 1992). A slowdown in the rate of increase of yields of major cereals raises concern since increased yields will have to be source of increased food production in the future. Most cultivable land in Asia, North Africa, and Central America has already been brought under cultivation, and physical and technological constraints are likely to restrain large-scale conversion of potentially cultivable land in Sub-Saharan Africa and South America. The option of area expansion as a source of food production increases is rapidly disappearing, and even Africa will have to rely mostly on increased yields to expand food production.

Another cause of concern on the food production front is the leveling off during the 1980s and early 1990s of grain production per person for the world and for the developing countries as a group, after steady increases during the 1950s, 1960s, and 1970s. Since 1985, the trend in world grain production per person has been falling. If corrective actions are not taken soon, this trend will have adverse repercussions not just because the additional population needs adequate food, but because factors in addition to population growth are pushing up demand for grain. While future demand for grain for direct consumption is expected to grow at a rate only slightly above population growth, the expected growth rate in world feedgrain demand is more than twice the expected population growth rate (Paulino, 1986). Once incomes increase beyond a certain level, demand for feedgrain increases rapidly; most developing countries have incomes still below the level where feedgrain use increases rapidly.

In sum, the world is not food secure today. Food insecurity, hunger, and malnutrition are widespread, particularly in South Asia and Sub-Saharan Africa. Poverty is the main force restraining access to food. Global availability of food has not yet translated into access to food by all people.

## PROSPECTS FOR FUTURE WORLD FOOD SECURITY

Food security depends on both the supply and the demand for food. Population growth, urbanization, income change, relative food prices, and changes in preferences associated with changing lifestyles are among some of the major driving forces that will influence food consumption. It is expected that in Sub-Saharan Africa, population growth and urbanization will be the overwhelming driving forces, a combination of income and population growth will account for most of the growth in food consumption in South Asia and Latin America, and income growth and changing lifestyles will play the biggest role in East Asia. Some of the major driving forces that will influence food production in come years will be investments in agriculture, considerations related to natural resource management and the environment, and government policy.

IFPRI projections suggest that the future aggregate food supply picture is likely to be good if investment in agricultural research and infrastructure is maintained at least at the already reduced levels of the 1980s (Rosegrant, Agcaoili-Sombilla and Perez, 1995). In the most likely scenario, world foodgrain production will grow on average by 1.5 percent per year between 1990 and 2020 , a rate high enough to increase global per capita availability of food and to reduce real prices for most commodities.

The food supply picture is not good for all regions. Sub-Saharan Africa is of special concern. The gap between production and market demand for cereals is expected to triple to 27 million tons in 2020. Because of widespread poverty, the gap between food production and need will be even larger. It is unlikely that the region will have the capacity to commercially import its food needs or that enough food aid will be available to bridge this gap. Food aid is likely to be increasingly scarce as trade arrangements made through the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) are implemented, because domestic price support to agriculture and associated surplus production in industrialized countries will fall.

Sub-Saharan Africa's food economy is unlikely to have much effect on the global food situation. However, what happens in two regions —China on the one hand and Eastern Europe and the former Soviet Union on the other— will influence the global food projections. Any dramatic changes in China's food economy will reverberate around the globe. Structural changes in Eastern Europe and the former Soviet Union will determine the pace at which that region shifts from being a major cereal importer to a major exporter.

The gap between production and consumption is expected to widen in all developing regions. Asia is projected to have the largest net imports in 2020, followed by North Africa and the Middle East. Sub-Saharan Africa's net imports are projected to increase 330 percent during 1988-2010. Net imports are a reflection of the gap between production and demand. The gap between production and need will be even wider. Many of the poor are priced out of the market, even at low food prices, and are unable to exercise their demand for needs food.

The better-off developing countries, notably large parts of East Asia, will be able to fill the gap between cereal production and demand through commercial imports, but the poorer countries will lack sufficient foreign exchanges to import food in needed quantities. It is the later group of countries, including most of Sub-Saharan Africa and parts of South Asia, that will remain a challenge for the world community, requiring special assistance to avert widespread hunger and malnutrition. Population growth in Sub-Saharan Africa will outstrip growth in food production for a long time to come, unless more is done to accelerate agricultural growth and reduce population growth.

Food prices have been on a downward trend for many years. During the 1980s, real food prices dropped by 6.5 percent per year, with further decreases of 4.9 and 1.0 percent in 1991 and 1992, respectively (World Bank, 1992). Falling real food prices reflect successful supply expansions and lack of purchasing power among a large share of the population. Poor people cannot express their food needs as market demand. More than one billion people earn less than a dollar a day. Clearly, they are not in a position to convert their food needs to effective market demand. Since price is a product of both food supplies and economic demand, low prices indicate the persistence of poverty and a lack of sufficient purchasing power as well as increasing food production.

Do the projected shortfalls mentioned above suggest that the world is headed toward a global food shortage and rapidly increasing real food prices? International grain prices have increased significantly during recent months and world grain stocks are low. However, there is no reason to expect significant increases in international real food price trends during the next 10 years, if yield growth rates of the 1970s and 1980s continue. The recently concluded GATT agreement will reduce agricultural subsidies in the European Union and the United States, but at a rate and speed far below what was visualized at the outset of the Uruguay Round more than eight years ago. Nevertheless, the agreement will place upward pressure on international food prices. However, the effect will be much less than the 15-20 percent price increase projected for total liberalization. It is likely that Eastern Europe and the former Soviet Union will increase agricultural production considerably faster than demand during the next 10 years (Tyers, 1994). This will place downward pressures on world prices. Food shortages in Sub-Saharan Africa are unlikely to significantly influence international demands and prices due to lack of foreign exchange, unless increasing amounts of food aid are made available.

Global food insecurity, hunger, and poverty are not expected to diminish much in the near future. The number of undernourished people is projected to decline from the current

800 million to about 650 million in 2010, with the largest decline in East Asia followed by South Asia. However, the number of undernourished people is projected to increase 70 percent in Sub-Saharan Africa to 296 million people, 32 percent of the region's population. By 2010, almost half of the developing world's undernourished people will be located in Sub-Saharan Africa, up from 10 percent in 1969/71.

#### THE NEED FOR ACTION: A 2020 VISION

We need not accept the above projections of continued wide spread food insecurity and malnutrition. What the world's food security situation will look like in coming years depends on what we do today. If the international community continues to act complacent, as it has done in recent years, there is no question it will get worse-many more people will go hungry and malnourished, more children will be underweight, the prevalence of diseases of hunger and malnutrition will overshadow all other health problems, and the magnitude of emergency relief needed will accelerate. If the global community can exercise foresight and mobilize the needed leadership to pursue a common path toward assuring world food security, then there is hope for the world's hungry and food insecure.

In this spirit of developing a vision to eradicate hunger without damaging the natural resource base, the International Food Policy research Institute (IFPRI), in collaboration with several national and international institutions, launched an initiative on A 2020 Vision for Food, Agriculture, and the Environment. The 2020 vision is: a world where every person has economic and physical access to sufficient food to sustain a healthy and productive life, where malnutrition is absent, and where food originates from efficient, effective, and low-cost food and agricultural systems that are compatible with sustainable use and management of natural resources (IFPRI, 1995).

The 2020 Vision will be realized only if broad-based economic growth is accelerated, gender equality in decisionmaking is enhanced, and access by low-income people, especially women, to productive assets, markets, employment, education, and health care is improved. The action needed is not new, but it will require joint efforts by individuals, households, local communities, private sector, civil society, national governments, and the international community. It will require a change in behavior, priorities, and policies. And it will depend on strengthened cooperation between industrialized and developing countries as well as among developing countries.

Sustained action is needed in six priority areas to realize the 2020 Vision:

1. Strengthen the capacity of developing-country governments to perform their appropriate functions;
2. Enhance the productivity, health, and nutrition of low-income people and increase their access to employment and productive assets;
3. Strengthen agricultural research and extension systems in and for developing countries;

4. Promote sustainable agricultural intensification and sound management of natural resources, with increased emphasis on areas with fragile soils, limited rainfall, and widespread poverty;
5. Develop efficient, effective, and low-cost agricultural input and output markets; and
6. Expand international assistance and improve its efficiency.

Specific recommendations for action are provided below for each priority area.

Strengthen the capacity of developing-country governments to perform their appropriate functions.

Each country must identify the appropriate functions of its government vis-a-vis other parts of society. The government's capacity to perform these functions must be strengthened while it relinquishes those functions better performed by others. Policy predictability and transparency in policymaking and enforcement, currently lacking in many countries, are critical to assist the private sector to predict the investment environment. Policies to support the 2020 Vision should be guided by a long-term national strategy for food security and nutrition, agricultural development, and management of natural resources. Governments should facilitate food security for all households and individuals, not by physically delivering needed foods to all citizens but by facilitating a social and economic environment that provides all citizens with the opportunity to assure their food security. Exchange rates and monetary and fiscal policies appropriate for accelerated broad-based economic growth must be maintained. Developing countries should seek improved access to international markets through bilateral and multilateral trade negotiations and regional integration, and press for further reform of global trade.

Enhance productivity, health, and nutrition of low-income people and increase their access to employment and productive assets.

The productivity of poor people must be increased, and their access to remunerative employment and productive resources improved. Investments in education, health care, clean water, sanitation, and housing, which are essential for human resource development, are far below required levels, particularly in rural areas of low-income developing countries. Underinvestment in the health and education of females is particularly severe. Efforts must be made to lower fertility rates and slow population increases.

Governments, local communities, and nongovernmental organizations should assure access to and support for a complete primary education for all children, with immediate emphasis on enhancing access by female and rural children; assure access to primary health care, including reproductive health services, for all people; improve access to clean water and sanitation services; provide training for skill development in adults; and strengthen and enforce legislation and provide incentives for empowerment of women to gain gender equality. Improved access by the rural poor, especially women, to productive resources can be facilitated through land reform and sound property rights legislation, strengthened credit and savings institutions, more effective rural labor markets, and infrastructure for small-scale enterprises. Social safety nets for the rural poor are urgently needed. Direct transfer programs,

including programs for poverty relief, food security, and nutrition intervention, are needed in many countries at least in the short term and must be better targeted to the poor. Support for famine early warning systems and other disaster preparedness and management systems must continue to be maintained.

Strengthen agricultural research and extension systems in and for developing countries. Existing technology and knowledge will not permit production of all the food need in 2020 and beyond. Low-income developing countries are grossly underinvesting in agricultural research compared with industrialized countries, even though agriculture accounts for a much larger share of their employment and incomes. Their public-sector expenditures on agricultural research are typically less than 0.5 percent of agricultural gross domestic product, compared with about 1 percent in higher-income developing countries and 2.5 percent in industrialized countries.

Developing countries must expand their investments in agricultural research to increase the productivity of agricultural production per unit of land and per agricultural worker and to decrease unit costs in food production, processing, and distribution. They should invest at least 1 percent of the value of their total agricultural output in agricultural research, with a long-run (5-10 years) target of 2 percent. Each country should develop a portfolio of research activities that conform to the needs of the country and to the expected social returns. While expanded agricultural research is urgently needed for all ecoregions, added emphasis should be placed on sustainable productivity increases in areas with significant agricultural potential but with fragile soils, low or irregular rainfall, widespread poverty and natural resource degradation, interaction between public-sector agricultural research systems, farmers, private-sector companies that conduct agricultural research, private-sector enterprises in food processing and distribution, and nongovernmental organizations should be strengthened to assure relevance of research and appropriate distribution of responsibilities. Investments in strategic international and regional agricultural research with large potential international benefits should be expanded to better support national efforts. Biotechnology research in national and international research systems should be expanded to support sustainable intensification of agriculture in developing countries. Effective partnerships between developing-country research systems, international research institutions, and private—and public—sector research institutions in industrialized countries should be forged to bring biotechnology to bear on the agricultural problems of developing countries. Incentives should be provided to the private sector to undertake biotechnology research focused on the problems of developing-country farmers.

Promote sustainable agricultural intensification and sound management of natural resources, with increased emphasis on areas with fragile soils, limited rainfall, and widespread poverty.

Natural resources and agricultural inputs are critical determinants of food supply. Degradation of natural resources—such as soils, forests, marine fisheries, water—undermines production capacity, while availability of and access to agricultural inputs—such as water

fertilizer, pesticides, energy, research, and technology-determine productivity and thereby production.

Since 1945, about 2 billion of the 8.7 billion hectares of agricultural land, permanent pastures, and forest and woodlands have been degraded. Overgrazing, deforestation, and inappropriate agricultural practices account for most of the degradation. To a large extent, these result from or are exacerbated by inadequate property rights, poverty, population pressure, inappropriate government policies, lack of access to markets and credit, and inappropriate technology. Crop productivity losses from degradation are significant and widespread. In the absence of efforts to protect nondegraded soils and to restore currently degraded soils, increasing population and persisting poverty will hasten soil degradation.

Public —and private— sector investments in infrastructure, market development, natural resource conservation, soil improvements, primary education and health care, and agricultural research must be expanded in areas with significant agricultural potential, fragile soils, and large concentrations of poverty to effectively address their problems of poverty, food insecurity, and natural resource degradation before they worsen or spill over into other regions. In areas of low current productivity but significant agricultural potential, public policy and public-sector investment should promote sustainable use of existing natural resources to enhance the productivity of agriculture and other rural enterprises. Incentives should be provided to farmers and local communities to invest in and protect natural resources and to restore degraded lands. Clearly specified systems of rights to use and manage natural resources, including land, water, and forests, should be established and enforced. Local control over natural resources must be strengthened, and local capacity for organization and management improved. Farmers and communities should be encouraged to implement integrated soil fertility programs in areas with low soil fertility through policies to assure long-term property rights to land, access to credit, improved crop varieties, and information about production systems; through effective and efficient markets for plant nutrients, and investments in infrastructure and transportation systems; and through temporary fertilizer subsidies where prices are high due to inadequate infrastructure or poorly functioning markets. Integrated pest management programs should be promoted as the central pest management strategy to reduce use of chemical pesticides, remove pesticide subsidies, and increase farmer participation in developing effective and appropriate strategies of pest management. Water policies should be reformed to make better use of existing water supplies by providing appropriate incentives to water users, improving procedures for water allocations, and developing and disseminating improved technology for supply and delivery.

Develop effective, efficient, and low-cost agricultural input and output markets. The efficient functioning of markets, especially agricultural input and output markets, supported by governments that have the capacity to perform their role, is of critical importance for realizing the 2020 Vision. In recent years, many countries have embarked upon market reforms to move away from state-controlled, or parastatal, organizations toward reliance on private firms operating in free markets. While clearly desirable, such reforms must

be undertaken with care, taking into account the organizational structure of the affected markets.

To obtain gains from improved efficiency and reduced costs of marketing agricultural inputs and outputs, governments should phase out inefficient state-run firms in agricultural input and output markets and create an environment conducive to effective competition among private agents in order to provide efficient and effective services to producers and consumers. Governments should identify their role in agricultural input and output markets and strengthen their capacity to perform this role better while disengaging itself from functions that should be undertaken by the private sector. Policies and institutions that favor large-scale, capital-intensive enterprises over small-scale, labor-intensive ones should be removed. Market infrastructure of a public-goods nature, such as roads, electricity, and communications facilities, should be developed and maintained by direct public-sector investment or effective regulation of private-sector investment. Governments should develop and enforce standards, weights and measures, and regulatory instruments essential for effective functioning of markets. Development of small-scale credit and savings institutions should be facilitated. Technical assistance and training could be provided to create or strengthen small-scale, labor-intensive competitive rural enterprises in trade, processing, and related marketing activities.

Expand international assistance and improve its efficiency.

The current downward trend in international development assistance must be reversed, and industrialized countries allocating less than the United Nations target of 0.7 percent of their gross national product (GDP) should rapidly move to that target. Official development assistance, which is only a small fraction of the resources required by developing countries, must be allocated to effectively complement national and local efforts. Official government-to-government assistance should be made available primarily to countries that have demonstrated commitment to reducing poverty, hunger, and malnutrition and to protecting the environment—the goals embodied in the 2020 Vision. International development assistance must be realigned to low-income developing countries, primarily in Sub-Saharan Africa and South Asia where the potential for further deterioration of food security and degradation of natural resources is considerable. In higher-income developing countries, concessional aid such as grants should be replaced by internationally available commercial capital, freeing resources for the low-income countries. To improve effectiveness of aid, each recipient country should develop a coherent strategy for achieving its goals related to food security, poverty, and natural resources, and should identify the most appropriate uses of international assistance.

The 2020 Vision provides an input into country-specific strategies to take to eradicate hunger while protecting the environment. What is needed is commitment on the part of all members of society to take the required actions. It is in our hands to determine what our world will look like in the years to come.

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