

World Food Situation: An Overview.

For most of the past 50 years food production has outpaced rising demand. World population has doubled since World War II, but food production has tripled. In the developing world the calories available per person increased from an average of 1,925 calories in 1961 to 2,540 calories in 1992. World food production has expanded since the early 1960s due mainly to the Green Revolution—adoption of crop rotation, the mass production and use of petroleum-based fertilizers and chemical pesticides, expanded irrigation, and the introduction of genetically superior, disease-resistant cultivars (cultivated crops).

The trend may now be changing for the worse, however. Since about 1990 global grain production has risen only slightly and, despite slower rates of population growth, grain supplies per capita have fallen. In the worst case, Africa now produces nearly 30% less food per person than it did in 1967. The reasons for the change in the trend include not only rapid population growth on the demand side, but also higher population densities in traditional agricultural areas, fragmentation of small farmsteads, poor land management including deforestation, and inappropriate agricultural and economic policies, all of which suppress supply. With one-third of world population lacking food security now, FAO estimates that world food production would have to double to provide food security for the 8 billion people projected as world population in 2025. By 2050, when world population is projected to be over 9 billion, the situation would be even more challenging. At current levels of consumption, without allowing for additional imports of food, Africa would have to increase food production by 300% to provide minimally adequate diets for the 2 billion people projected in 2050; Latin America would have to increase food production by 80% to feed a projected 810 million people; and Asia's food production would have to grow by 70% to feed the 5.4 billion people projected. Even North America would have to increase food production by 30% to feed a projected 384 million people in 2050.

Rapid population growth not only pushes up demand for food but may also be starting to diminish supply as well. As people try to obtain higher yields from heavily used natural resources, soil loss worsens, fresh water becomes scarcer, and pollution increases. As a result the developing world's (especially Africa's) capacity to expand food production may well be shrinking, not expanding.

While food is abundant in many areas, many millions of people in developing countries are undernourished. Each year about 18 million people, mostly children, die from starvation, malnutrition, and related causes. An estimated two billion people suffer from malnutrition and dietary deficiencies; according to FAO, some 840 million of them are chronically malnourished. In sub-Saharan Africa as many

as 70% of all women are anaemic.

About 200 million children under age five—40% of all children of this age in the developing world—lack sufficient nutrition to lead fully active lives. One indicator of chronic malnutrition among children is the percentage who are stunted—that is, short for their age compared with international standards set by the World Health Organization (WHO). Stunting among children ages 3 months to 3 years varies widely among countries, but at least one child in every three was stunted in over 40% of countries surveyed by the Demographic and Health Surveys between 1987 and 1996.

Recent projections by the International Food Policy Research Institute (IFPRI) indicate that child hunger and malnutrition are not likely to be reduced much over the course of the next several decades. According to IFPRI, 150 million children under the age of six will still be malnourished in 2020, just 20% fewer than in 1993. In Africa the number of malnourished children is expected to increase by 45% between 1993 and 2020, reaching 40 million.

IFPRI projects that by 2020 nearly 70% of the people suffering from food insecurity will live in sub-Saharan Africa and South Asia. By 2020 every third person in sub-Saharan Africa is likely to lack food security, every eighth person in South Asia, and every 20th person in East Asia.

As they have throughout history, famines periodically kill millions of the world's poorest people. In 1974, for example, Bangladesh was hit by famine. While food remained available in many districts, it did not reach poor farmers who had lost their crops to widespread flooding. With their harvests ruined, and lacking cash to buy food, many starved.

The households most vulnerable to hunger and its consequences are large, poor families in rural areas and those in urban squatter settlements. Because poor families must spend most of their incomes just to eat, little remains for education, health care, sanitation, or housing. Often, villagers say that they cannot afford to feed large families and provide a decent life for themselves or their children. It is difficult to escape from this cycle of poverty. Many rural people say that, if they had known about and had used family planning when they were just entering their reproductive years, they would have had fewer.

Seasonal food shortages threaten the health and well-being of many subsistence farmers and their families. To survive, many farmers must move temporarily to towns and cities, looking for wage employment, or else work as farm laborers for wealthier land owners. In hard times subsistence farmers may even have to sell some of their land to buy food and pay their debts. If they cannot buy back their land in better times, they must struggle to live off smaller and smaller parcels of land. Some lose all their land.

Since the early 1980s FAO has issued yearly reports listing the world's low-income, food-deficit countries. In 1996 there were 82 such countries, half of them in Africa. In 2009, this figure was still 78, with more than half from Africa. By definition, these countries have a per capita gross national product (GNP) of US\$1,345 or less and have had a net deficit in grain trade over the preceding five years.

The situation could grow worse for food-deficit countries. In many of them, population growth is among the most rapid in the world, and most face serious constraints to increasing agricultural production.

In poor countries, particularly in Sub Saharan Africa, but also elsewhere, limits on natural resources and poor agricultural practices make it difficult to meet food needs, both now and in the future. Assuring food security over the long term depends on making agricultural production environmentally sustainable.

Sustainable agriculture, as defined by FAO, means agriculture that conserves land, water, and plant and animal genetic resources, does not degrade the environment, and is economically viable and socially acceptable. Thus sustainable agriculture manages and uses natural resources to meet people's needs both now and in the future.

In some countries, however, environmentally destructive farming and fishing practices and poor conservation and resource management are limiting the productivity of natural resources even as population growth demands more. Because the costs of poor environmental practices are rarely taken into account, they are often given too little weight in policy decisions. It is clear that, if food production, water supply, and other ecosystem services continue to be undervalued and therefore overexploited, the impact on human welfare could become enormous, they warn.

Among the most serious constraints to achieving sustainable agriculture and food security in the face of population growth are: shortages of arable land, degradation of land resources, loss of agricultural land due to urbanization, water shortages and pollution, irrigation problems, collapsing fisheries, disappearing genetic diversity, and climate change.

However, even with adequate global supplies, recent studies have all projected serious food problems in developing countries, primarily Sub-Saharan Africa and South Asia. Food insecurity will grow significantly in these regions, resulting either in higher food aid requirements or more serious malnutrition. Globally, it is projected that both the absolute number and the proportion to the population suffering from under-nutrition will decrease, although FAO (1995) projected that by the end of 2010 more than 800 million people will still lack food security.

We know that agricultural production is a biological process which depends on the natural resource base, especially soil and water, and on favourable climatic conditions. While the world's supply of land and water is finite, its capacity for supporting agricultural production can be modified over time through investment. The productivity of land (or the degree to which physical land and water availability constrains agricultural output) can be affected by technology (the substitution of knowledge-based inputs for natural resources). Much of the disagreement between the optimists and the pessimists is fundamentally about the rate at which knowledge-based inputs can be developed, and the degree to which natural resources can be replaced by knowledge-based inputs.

As agriculture has become more dependent on technology, questions have been raised about the ability of science to provide a sufficient stream of new technology to keep pace with increasing demands for food especially in poor developing countries. In fact, a related, but fundamentally different, concern is raised with respect to the ability of new technology to provide food security in the low-income, food-deficit developing countries of the world. This concern has two dimensions. First, the more impoverished developing countries are poorly prepared, in terms of human capital and physical and institutional infrastructure, to support the adoption and use of modern technology. Thus, technology may not be able to increase domestic supply in these countries to keep pace with rapidly growing populations. Second, and possibly more important, is the concern that poverty, both rural and urban, cannot be eliminated by technology alone. Lack of purchasing power may mean that large segments of the population have no access to food supplies, either domestic or imported, even though these may be increasing.

It is known that food and agricultural policies (both internal and international) constitute the second major determinant of the long-term outlook for world food supplies. A policy environment that distorts prices and other incentives for producers and consumers away from the true social values of natural resources (including the environment) and other inputs leads to inefficient production (use of resources) and raises further concern about the long-term future of the global food supply.

Food and agricultural policies, including trade policies, are almost universally adopted for good and noble reasons. However, governments often fail to understand that policies have multiple effects which are often inconsistent with, and sometimes contrary to, the original policy objective. This has led to a global

policy environment which is badly distorted, and has contributed to a global agriculture that was once referred to by Professor D. Gale Johnson as being "in disarray".

The tendency to, sometimes, emphasize misguided agricultural policies should not be taken to imply that all government intervention is bad, and that "just leaving it to the market" would lead to a sustainable solution to the long-term food supply-demand problem, especially in developing countries. There are three supply problems that are not handled satisfactorily by markets:

- Private costs and returns as captured in market prices are not always consistent with social costs and returns, leading to socially inefficient use of resources and the environment. (Taxes and subsidies or regulations are necessary to correct for this).
- Markets do not always adequately value the long-term consequences of resource use and misuse, and thus may not lead to substitution away from scarce resources before irreparable harm has been done. (Here, also taxes and subsidies or regulations may be needed). It is especially in this latter case that there is some reason for caution in asserting that technology and the market (with limited help from policy-makers) can take care of long-term growth in the global demand for food and fiber. We don't really know the degree to which knowledge based inputs (technology) can be substituted for natural resources and environmental quality.
- The resources affected by developed countries to subsidize their agriculture has distorted the agricultural market and rendered developing countries production not competitive at world market level despite the Uruguay Round of the GATT negotiations, particularly on agriculture, tropical products, and intellectual property, which have never been implemented efficiently to reduce distortions and resource inefficiency in the market place.

Whatever optimism one can derive from the above brief analysis cannot be considered to be automatic, and countries must not become complacent. Growth in demand as a consequence of population needs and income growth will place increasing pressure on the global natural resource base and the environment. Low incomes for large numbers of people will continue to leave an important gap between the "need" for food and "effective demand" for food. In order to meet the challenge of providing greater global food security over the next two or three decades, without detracting from the capacity to meet the same challenge in the even more distant future, we must:

- Increase investment in agricultural sector and research, especially in less

industrialized and developing countries, to ensure a continuing stream of new and appropriate technology;

- Adopt policy frameworks that are conducive to production and consumption decisions that make efficient use of resources and the environment, and provide incentives for future investment especially in the agricultural sector.
- Continue to remove barriers to trade in food and agricultural commodities, inputs and technology between countries, so as to achieve maximum efficiency in use of global productive capacity, and maximum flexibility to adjust to shocks in supply and demand occurring in individual countries; *and*
- Stimulate more rapid economic development in poor countries, so as to eliminate the root cause of food insecurity, namely, poverty.