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Enough Food for Future Generations?

The world's population is expected to double from the current 5.4 billion to over 10 billion by the year 2050, eventually stabilizing at around 11 to 12 billion or perhaps somewhat higher. In the next three decades alone, almost 100 million people will be added to the world's population every year—the largest population increase ever. Most of the population increase will take place in the developing world. The absolute increase will be largest in Asia, while the relative increase will be greatest in Africa.

Will there be enough food available for future generations? And even if there is enough food available, will all the people have access to sufficient food to lead healthy, productive lives? What can we learn from current food trends? Are the production trends of the last thirty years likely to continue, or are we headed toward the fulfillment of Malthus' predictions? Are we likely to face a future of global food surpluses or one of increasing food scarcity and widespread hunger? Or will we continue the current situation of food surpluses coexisting with widespread hunger?

Current world food trends

The world food situation has never *appeared* better. Enough food is being produced today so that no one should go hungry. Globally, about 2,700 calories are available per person per day, considerably exceeding minimum requirements. World food production increased faster than did population for several decades until the mid 1980s; real food prices are at historic lows and have been declining for a long time now; and yields of major cereals have more than doubled in the past three decades. These trends have contributed to complacency in some quarters regarding the world food situation.

Yet, more than 700 million people in the developing world do not have access to sufficient food to meet their needs for a healthy and productive

life. Access to food by individuals is conditioned by poverty. Availability of enough food at global, regional, or national levels does not necessarily mean that it is evenly distributed and that everyone is well-fed. So, despite production of enough food to feed the world, almost one-fifth of the total population of developing countries is hungry.

Population growth is eroding food production increases in the developing world. Despite total food production increases of 39 percent, per capita food production increased by only 13 percent in the 1980s (figure 1). In Africa and the Near East, per capita food production declined. In seventy-five countries, less food was produced per person at the end of the 1980s than at the beginning. Three-fourths of the African countries fell into that category, as did almost two-thirds of the Latin American countries and half of the Asian countries.

Except in Africa, increased yields in major cereal crops have been the source of most of the food production gains in the developing world in the

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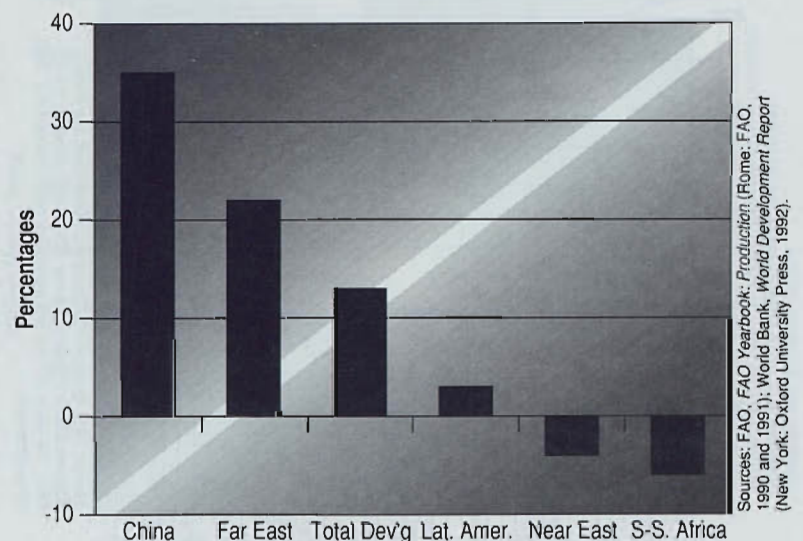


Figure 1. Change in per capita food production, 1979-81 to 1989-91

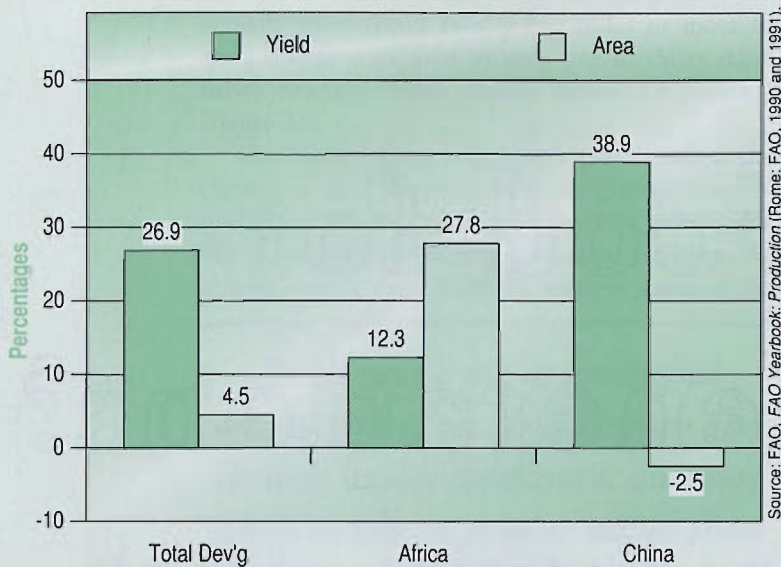


Figure 2. Change in area and yields for cereals, 1979-81 to 1989-91

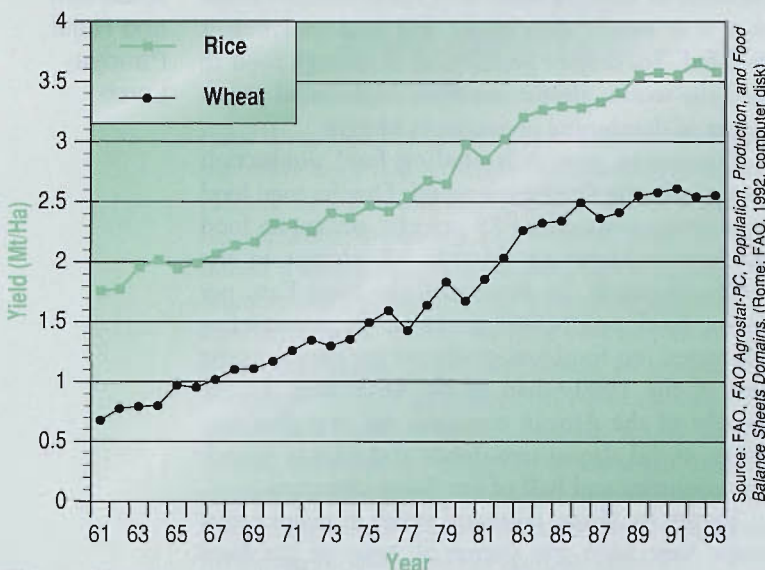


Figure 3. Trend in rice and wheat yields for Asia, 1961-93

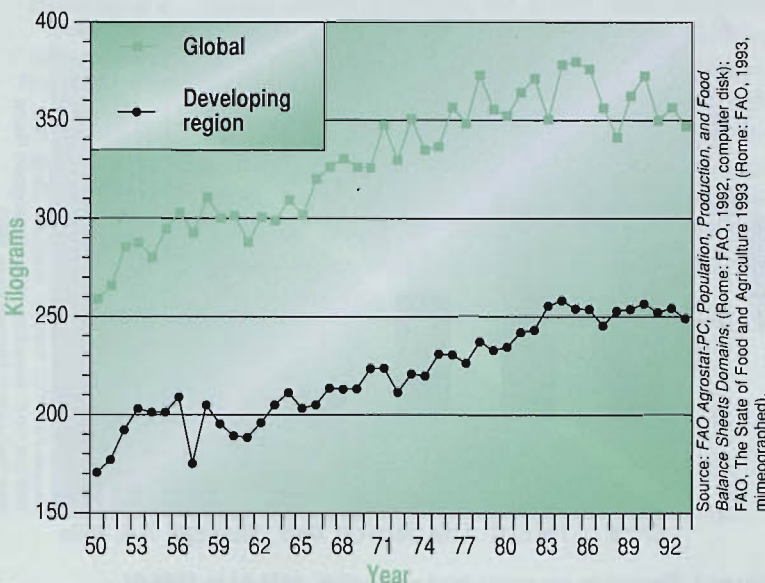


Figure 4. Global and developing-region grain production per person, 1950-93

recent past (figure 2). Mainly stimulated by the green revolution, yield trends in developing countries have climbed steadily upward for the three major cereals (rice, wheat, and maize) since the 1960s. However, there are signs of stagnating or even falling yield growth rates. In Asia, the annual rate of increase in rice yields has declined from about 3 percent between the mid 1970s and early 1980s to less than 2 percent in the late 1980s; since 1989, rice yields have stagnated at around 3.6 tons per hectare (figure 3). Annual yield growth rates for wheat in Asia have also slowed from 4.4 percent in the late 1970s to 2.7 percent in the 1980s; since 1989, wheat yields have remained around 2.5 tons per hectare.

After increasing steadily during the 1950s, 1960s, and 1970s, world grain production per person has been on a downward trend since the mid 1980s, primarily due to declines in the former Soviet Union and Eastern Europe (figure 4). Grain production per person in the developing world has remained constant since the mid 1980s. If corrective actions are not taken soon, per capita food production for the developing region is likely to decline. This is cause for concern, 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, expected growth in world feedgrain demand is more than twice the expected population growth (figure 5).

Real food prices have been on a downward trend for many years (figure 6). 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 1 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.

Prospects for meeting future food needs

Over the next twenty to thirty years, the world will be challenged to provide food at affordable prices for almost 100 million more people every year, in addition to the more than 700 million people today who are not able to access the food they need. Growth in incomes and urbanization in the coming years will shift consumer demand to increased consumption of livestock, which will increase de-

mand for feedgrain. The increased food and feed production must come from more productive use of the land and without further degradation of natural resources; significant area expansion is no longer a feasible economic or ecological option in most of the world.

International Food Policy Research Institute (IFPRI) projections suggest that the gap between cereal production and consumption in developing countries as a group will further widen in coming years (figure 7). The better-off developing countries, notably large parts of East Asia, will be able to fill the gap through imports, but the poorer countries will lack sufficient foreign exchange to import food in needed quantities. It is the latter 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. Between now and the year 2000, population will grow at 3 percent per year while food production is likely to grow at 2 percent or less per year. By the year 2000, the production shortfall could be as much as 50 million tons of grain equivalent, more than three times the current level of imports. The region is not likely to have the necessary foreign exchange to import such large amounts of food, and African governments will not be able to count on enough food aid to make up the difference. If current trends continue, the World Bank estimates that Africa could have a food shortage of 250 million tons by the year 2020, more than twenty times the current food gap.

Increasing imports by those developing countries which possess the necessary foreign exchange are likely to be met by the industrialized countries without real price increases. In fact, it appears that real food prices in the world market will continue to fall over the next ten years. Implementation of the recently concluded Uruguay Round of GATT negotiations is expected to place some upward pressures on international food prices while future production expansions in Eastern Europe and the former Soviet Union are likely to result in downward pressures on food prices. However, even at lower prices, the outlook for those low-income developing countries for whom increasing food deficits are projected is bleak.

Hunger associated with the failure to effectively integrate the poor into the economic development process is blatantly evident and will accelerate unless policies to alleviate poverty, generate employment, and raise incomes are vigorously pursued. Much of the poverty and food insecurity is con-

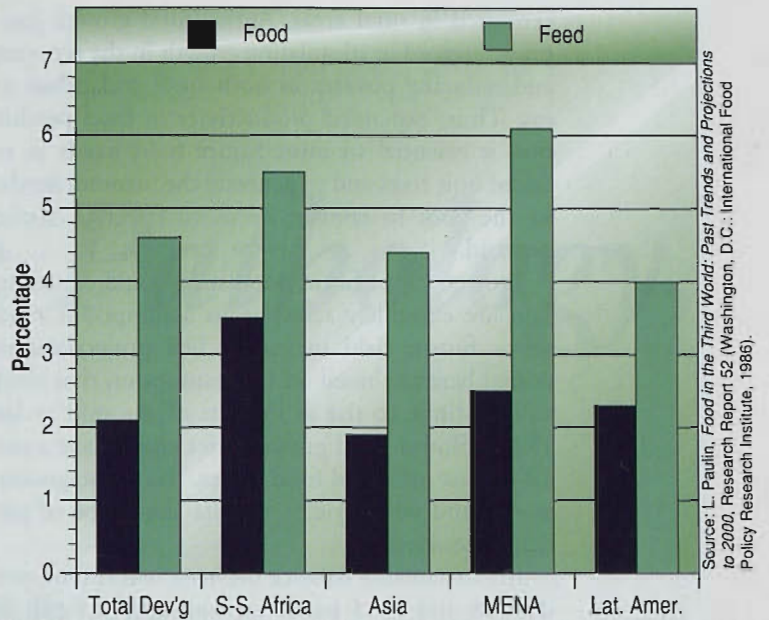


Figure 5. Projected annual growth in cereal consumption for food and feed, 1980-2000

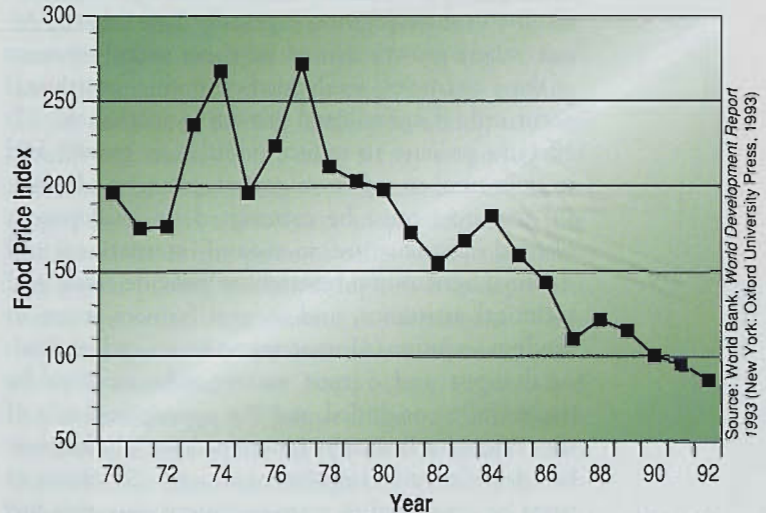


Figure 6. World food price index, 1970-92 (in constant dollars, 1990=100)

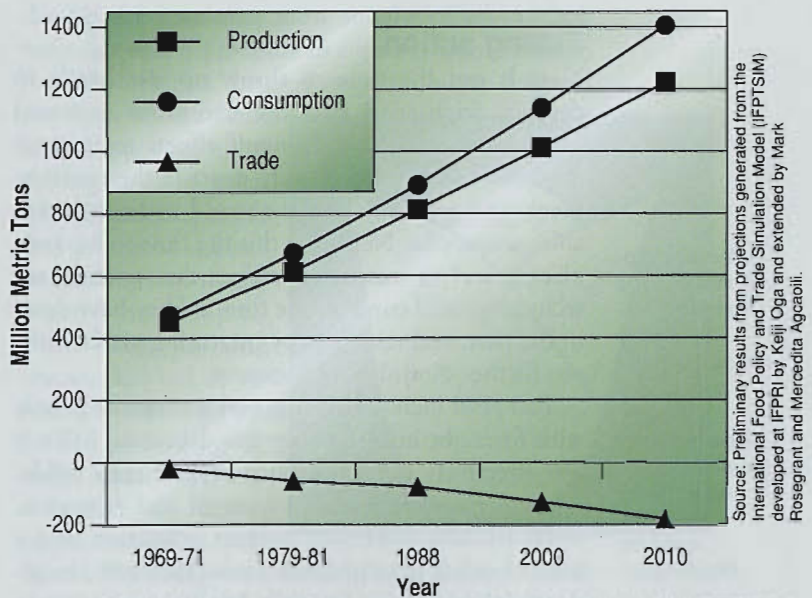


Figure 7. Production, consumption, and trade of cereals in developing countries

centrated in rural areas. Agricultural growth has a proven record in stimulating growth in the economy and reducing poverty in both rural and urban areas. Thus, expanded productivity in food production is essential to meet future food needs at reduced unit costs and to generate the incomes needed by the poor to convert needs to effective market demand.

Projections of future food supply and consumption are extremely sensitive to assumptions made about future yield increases. The projections reported here are based on the assumption that yields will continue to rise at the rate of the mid to late 1980s. Slower yield growth rates could have a major impact on world food prices. Recent stagnation in rice and wheat yields in Asia should be of particular concern.

If a sustainable balance between world food production and food needs (as opposed to food demand) is to be achieved in the coming years, five conditions must be met: (1) economic growth must resume in those regions, especially Sub-Saharan Africa, where growth slowed in recent years—in most of these countries, accelerated economic growth will occur only if agricultural growth is accelerated; (2) effective policies to reduce population growth and to slow rural-to-urban migration must be adopted; (3) resources must be committed to development of rural infrastructure, to expand international and national agricultural research, to provide credit and technical assistance, and to give farmers access to modern inputs; (4) macroeconomic and agricultural input and output market reforms must be successfully concluded and the appropriate role of the state as well as appropriate public policies must be identified and implemented; and (5) measures must be developed to manage natural resources and to prevent environmental degradation.

Taking action

Now is not the time to throw up our hands in despair, frightened that the enormous expected population increase will engulf efforts to increase food production, irreversibly degrade the environment, and generally lead the world to an unavoidable catastrophe. Neither is this the time to be complacent and to reassure ourselves that science and technology will come to the fore, as they have done in the past, and rescue us by increasing yields without further diminishing resources.

Past yield increases were generated because people with foresight made appropriate decisions. Science was effectively put to work to expand crop yields. Investments were made in research and extension, infrastructure, marketing systems, education, and a host of other development areas. However, in re-

cent years, investments critical for agricultural development have been seriously cut. External assistance to agriculture in low-income developing countries has declined from \$12 billion in 1980 to \$10 billion in 1990, in real terms. Failure to expand investments in agricultural research and technology in the past decade indicates that foresight no longer prevails. Given the long lag time between investment in agricultural research and the resulting production increases, failure to invest today will show up in food production shortfalls and increased hunger for future generations. Whether there is enough food for our children and grandchildren and whether our natural resources may maintain their productive and recreative capacity depend on actions we take and decisions we make today. Future generations will bear the consequences of our inaction and misplaced complacency. ■

■ For more information

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