

Is World Population Growth Slowing?

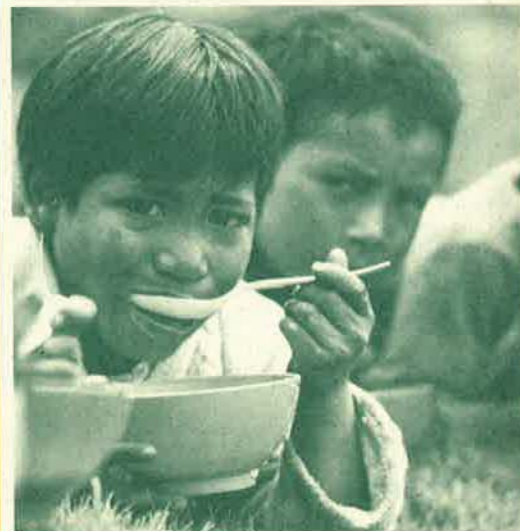
A United Nations study on the growth of the world's population into the next millennium—which projects that population could grow more slowly than expected—generated hopeful news coverage in late 1996, exemplified by a headline in the *New York Times* that declared: "World Is Less Crowded Than Expected." However, population experts point out that the rosy picture heralded by the *Times* does not mean the world's population worries are over. Actions taken by governments and individuals today will determine whether the number of people inhabiting the planet actually stabilizes or continues to skyrocket. And even if the United Nations' most widely reported projections hold true, the world population will still nearly double over the next two centuries, posing the unprecedented challenge of feeding more than 5 billion added people without depleting limited natural resources.

The figures that generated optimism in the media were revisions to previous U.N. projections and were issued by the Population Division of the Department for Economic and Social Information and Policy Analysis at the U.N. Secretariat. In its 1996 study, the United Nations found that population growth between 1990 and 1995 was 1.48 percent per year, rather than the 1.57 percent projected in 1994. In light of this lower rate, the United Nations revised its projections for population growth in the next century, based on three different assumptions about the fertility of the world's women. The medium fertility model—the one usually considered the most likely—would put the world's population at 9.4 billion by 2050 (half a billion lower than the United Nations' 1994 estimates). World population would continue to grow until 2200, according to this model, when it would stabilize at 10.73 billion.

The medium fertility model falls in the middle of a wide range of possible outcomes. Low fertility would result in a world population of 7.7 billion by 2200, whereas high fertility would mean 11.1 billion mouths to feed in 2200. These extremes are by no means unrealistic,

and the population debate is far from over. Experts caution against undue optimism based on media reports of one possible future. Public policy and individual behavior, they say, will ultimately determine the world's population.

"The situation is much more complicated than a simple headline," said Carl Haub, Conrad Taeuber Chair of Population Information at the Population Reference Bureau in Washington, D.C. "The population time bomb has not been defused. Population sizes in the distant future will be determined by what we do today."



Wild Cards

Family planning and economic development policies of the world's most populous countries and international organizations can profoundly influence population trends, experts say. Global factors, such as the AIDS death rate and the huge proportion of young people living today, also play into the complex calculations about the number of humans who will inhabit the planet.

With by far the world's largest populations, China and India will play decisive roles in overall population trends. Any percentage change of population in China is multiplied by the country's current population of 1.23 billion. (An

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March 1997

Unless Water Policies Are Reformed, Water Scarcity Could Pose a Major Obstacle to Feeding the World

Water scarcity could become one of the main obstacles to feeding the world unless urgently needed policy reforms are made, according to a new 2020 Vision discussion paper. While water supplies are dwindling because of groundwater depletion, waste, and pollution, demand is rising fast. Between 1950 and 1990, water use increased by more than 100 percent in North and South America, by more than 300 percent in Africa, and by almost 500 percent in Europe.

According to the paper, "new strategies for water development and management are urgently needed to avert severe national, regional, and local water scarcities that will depress agricultural production, parch the household and industrial sectors, damage the environment, and escalate water-related health problems."

Written by IFPRI research fellow Mark W. Rosegrant, the paper, *Water Resources in the Twenty-First Century: Challenges and Implications for Action*, assesses global water supply and demand, describes in detail the forces

contributing to water scarcity, and lays out a number of strategies for managing water in the future.

Any solution, according to Rosegrant, must involve both the careful exploitation of new sources of water and strong measures to stimulate more "efficient" use of water. Policies must treat water not as a free good, as they often do now, but rather as a scarce commodity that comes at a price. In many developing countries irrigation water is essentially unpriced, and in urban areas the price of water does not cover the cost of delivery. According to the paper, annual irrigation subsidies range from US\$0.6 billion in Pakistan to US\$1.2 billion in India and US\$5.0 billion in Egypt.

To improve the efficiency of water use, the report calls for "changing the institutional and legal environment [to] empower water users to make their own decisions regarding use of the resource, while at the same time providing a structure that reveals

the real scarcity value of water. . . . Key elements of these reforms include establishment of secure water rights of users; decentralization and privatization of water management functions; and the use of incentives including markets in tradable property rights, pricing reform and reduction in subsidies, and effluent or pollution charges."

Rosegrant points out that sensible and far-sighted methods of managing water resources have been adopted in some areas and have been successful in helping to alleviate water shortages. But such methods will need to become much more widespread if the world is to avoid large-scale conflicts and catastrophes stemming from water shortages. ■



China's Future Grain Needs Will Be an Opportunity for Grain-exporting Nations

China's demand for grain in the coming years will be an economic opportunity for grain-exporting nations, predicts a new 2020 Vision discussion paper, *China's Food Economy to the Twenty-First Century: Supply, Demand, and Trade*. Though China's grain imports will reach record highs over the next two decades, these increased imports pose no threat to world grain supplies or food prices, according to the paper.

Because of the country's sheer size, China's grain situation could have an enormous effect on the world's grain supply and prices. But researchers have not reached a consensus on just what China's grain balances are likely to be. In fact, projections of China's grain trade into the twenty-first century vary

dramatically. Some researchers predict that the country's demand for grain imports is likely to shoot up well beyond its capacity to grow its own food, draining international grain markets and inflating world food prices. Others project that China will become an exporter of grain.

IFPRI's latest paper on China by Jikun Huang, Scott Rozelle, and Mark W. Rosegrant explores the factors that will determine China's supply and demand balances of grain through the year 2020. Because it accounts for the structural changes now taking place in China, it may offer a clearer picture of China's future.

The study concludes that China's imports will rise to record levels over the next decade before stabilizing by 2020.

Baseline projections see China's total demand for grain at 450 million metric tons in 2000, rising to 513 million metric tons in 2010 and 594 million metric tons by 2020. Domestic production will rise as well, totaling 426 million metric tons in 2000, 486 million metric tons in 2010, and 570 million metric tons in 2020. As a result, grain imports will reach 24 million metric tons in 2000—a historic high—and increase to 27 million metric tons in 2010 but will level off at 25 million metric tons by 2020. Under a scenario of high population growth, imports would reach 52 million metric tons in 2020—more than twice the study's

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Diverse Views on the World Food Summit

The World Food Summit, organized by the Food and Agriculture Organization of the United Nations and held in Rome, November 13–17, 1996, brought together world leaders to take stock of the global food situation and its prospects. NEWS & VIEWS presents two views of the Food Summit.

The Food Summit: A Farce at Best, a Conspiracy at Worst

Binu S. Thomas, coordinator, Policy and Advocacy Unit, ACTIONAID India, a nongovernmental organization working on poverty eradication

The most charitable assessment of the World Food Summit would be to term it a farce. A more accurate one, however, would be to describe it as a conspiracy against the world's poor and hungry. After a year of preparation by the Food and Agriculture Organization of the United Nations, which hosted the event, the summit's only serious recommendation was: Grow More Food. If that was enough to effectively tackle the problem of rising hunger and malnutrition—which according to the FAO was one of the major reasons for convening the summit—the world would have successfully done so eons ago.

Hunger can never be eradicated by simply growing more food. Witness the situation in the Indian state of Orissa, where people in several districts are experiencing famine conditions and acute hunger even as the Government of India boasts of record food production of over 190 million metric tons and food stocks of some 25 million metric tons. The more fundamental issues relevant to wiping out hunger and malnutrition are who grows the food, how it is grown, whether the poor have physical and financial access to it, and in what manner food grown is consumed. Sadly, these issues received little attention from governments in Rome, efforts of NGOs to raise them notwithstanding. . . .

In 1974 the World Food Conference pledged to eradicate hunger in a decade, but in 1996 the world was not prepared to eradicate it even in two decades! Why? The answer perhaps lies in how the world has changed between 1974 and 1996. Food is no longer a basic human right, although governments will continue to accord some lip

service to this proposition so as not to lose the votes of the large numbers of hungry. Food is first and last a business. Profit is the name of the game, and hungry people, unfortunately, don't contribute to the bottom line.

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Today what people eat is increasingly being determined by an unholy trinity comprising transnational corporations, global capital, and international crop research institutes. These forces called the shots at the food summit, often acting under the guise of NGOs. They were rarely seen or heard in public, but their presence was certainly felt.

Anti-Science Movement Shadows the World Food Summit

Patricia Peak Klintberg, excerpted from an article in *Farm Journal*, January 1997

The anti-science agenda of some 1,200 nongovernmental organizations (NGOs) from 80 countries was a side show at the World Food Summit in Rome. There, in November, at the urging of the U.S., 186 countries agreed not to roll back the Uruguay Round commitment to trade liberalization. In addition, the overwhelming message from developing countries was recognition that they must enact internal reforms to reduce hunger. . . . Despite U.S. success at holding the line against protectionism, the NGOs that convened in a parallel meeting urged the opposite path.

Consider that since the last food summit [in 1974], India, a country of 800 million people, has gone from being a food deficit nation to an exporter. That accomplishment is the direct result of research-spawned new varieties [of crops] and the correct use of pesticides and fertilizer. Yet press coverage at the summit about these advances quoted Indian eco-feminist Vandana Shiva calling the Green Revolution a mistake. We must "put power back into the hands of the woman and the small farmer," she says. That sentiment is typical of the NGO recommendations for world food security.

A dismayed Dean Kleckner, American Farm Bureau Federation president, says, "There is nothing in the NGO [recommendations] that will feed one hungry person or increase food production. [They] are anti-trade, anti-development, and anti-technology."

The NGOs have so convinced the European press of the evils of chemicals that the ignorance about agriculture is positively breathtaking. One reporter began a question by saying, "As everyone knows the more fertilizer you apply, the smaller the yields produced. . . ."

New Publications

- Discussion Paper 19, *China's Food Economy to the Twenty-First Century: Supply, Demand, and Trade*, by Jikun Huang, Scott Rozelle, and Mark W. Rosegrant, 24 pages.
- Discussion Paper 20, *Water Resources in the Twenty-First Century: Challenges and Implications for Action*, by Mark W. Rosegrant, 27 pages.
- 2020 Brief 41, *Structural Changes in the Demand for Food in Asia*, by Jikun Huang and Howarth Bouis.
- 2020 Brief 42, *Africa's Changing Agricultural Development Strategies*, by Christopher L. Delgado.

Indonesia Continues Groundbreaking Model for Fighting Hunger and Poverty

Editor's Note: "2020 Views" seeks to generate dialogue and discussion through interviews with participants in the 2020 Vision initiative. For this issue, NEWS & VIEWS interviewed Dr. Soekirman, Indonesia's foremost nutritionist. Dr. Soekirman is former deputy for human resource development at the National Development Planning Agency in Indonesia and currently professor of nutrition at Bogor Agriculture University in Indonesia.

NEWS & VIEWS: What progress has Indonesia made in decreasing hunger and malnutrition over the past two decades? Has the number of underweight children gone down?

In 1984, we were first able to produce enough rice to feed our country. Until then, Indonesia was well known as one of the biggest rice-importing countries of the world. In 1974, we imported 1.2 million tons of rice from the world market. But by 1988, that figure had come down to almost zero, and we have maintained this self-sufficiency in production until now. As a result, there has been no reported hunger or starvation among adults. We often used to read about hunger and starvation in the newspapers, but we did not have those reports after the 1980s. We have also witnessed declining malnutrition in children. In the 1970s, around 50 percent of children under five years old had moderate or severe malnutrition. Today, this figure has declined to around 35 percent. This is still very high compared with other countries, but it is declining. Since 1993, we have also eradicated vitamin A deficiency, a major cause of blindness in Indonesia. However, behind these successes, we still have hidden hunger, particularly in children and in pregnant women. We have problems in controlling micronutrient deficiencies, particularly iron and iodine deficiencies.

NEWS & VIEWS: What actions has the government of Indonesia taken to reduce hunger? What spurred these actions? How are these actions funded?

First, since the early 1970s, the government of Indonesia has been highly committed to meeting the basic needs of people in its national development efforts. Priority has been placed on agricultural development, with special attention to providing adequate food,



Dr. Soekirman

employment, and income to rural people, who make up most of the population of Indonesia. A second priority of the government has been to sustain substantial economic growth—7 percent annually over the past 25 years—in order to reduce poverty. In the 1970s, 60 percent of our people—around 70 million—were living below the poverty line. By 1994, that number had been reduced to only 14 percent, or about 25 million people. The third priority of the government has been to make a nutrition program an integral part of the economic and social development plan.

At the beginning, about 60 percent of overall national development efforts were funded by foreign loans and assistance, and 40 percent were funded by domestic resources. Now, the proportion funded by loans and assistance has declined to only 13 percent.

NEWS & VIEWS: Indonesia recently started an innovative school nutrition program that seeks to increase student productivity and learning by providing regular nutritious snacks to students. Can you explain why this program was needed and what it has achieved so far?

In developed countries, there have been school lunch programs for decades, but we have not had that in Indonesia because we could not afford it. Also, over the past 25 years, the priority has been on preschool children because of the high mortality of children under five. Now, after 25 years of development, the situation among preschoolers is relatively better. In addition, the people's incomes are increasing, as is their education level. The government believes that communities and families are now better equipped to take care of children under five. So the government has shifted its attention to the primary school children.

This program is an example of how to link nutrition and agricultural development at the micro level.

The government has a very ambitious program to achieve universal education—9 years of basic schooling for everyone—within 10 or 15 years. We have already achieved universal education for 6 years of schooling. But there are serious challenges to going further than this, particularly in the rural areas. From the beginning, the government realized that school facilities were not adequate to launch a universal basic education program. Therefore, starting in 1975, it launched a program to build primary schools close to students' homes in villages all over the country. This has been accomplished, and there is now at least one school in every village with adequate books, teachers, and facilities.

Now the government is launching a school feeding program in poor villages as part of the national poverty alleviation program. In very poor areas, most of the children consume only about 70 percent

of the calories they need. They are anemic and infected with parasitic intestinal worms. Because their health is so poor, they have little motivation to learn and dropout rates are high. To solve this problem, we will provide a snack—not a meal, but a snack—to contribute the 30 percent of calorie requirements that the students now lack. If we provided a full meal, it would become a substitute: the parents would not give children their regular lunches at home, and the students would still be behind in their caloric intake.

These snacks are made by parents', teachers', and women's groups using money provided by the government. The snacks have to be made from locally grown products. They cannot be pre-packaged goods from the towns or cities. The reason is that we want to spur the cultivation of the parents' home-based gardens in the villages. These gardens are now mostly idle because there has been no market at which to sell products from home-based gardens. Now a market will be available through this school feeding program. We hope this will boost the village economy. Therefore, this program is an example of how to link nutrition and agricultural development at the micro level.

We will also provide deworming pills to students twice a year and education on health, nutrition, clean water, and sanitation.

NEWS & VIEWS: What lessons from Indonesia in the area of nutrition can be applied to other countries?

When the majority of people live in rural areas, as they do in most developing countries, governments should give high priority to agriculture as the backbone of economic development. Governments should also meet the basic needs of the people, particularly in the area of food and nutrition. We have proven in Indonesia that to eradicate hunger and malnutrition, the government must be committed to both economic growth and poverty alleviation at the same time. Last, for nutrition programs to be of interest to policymakers and to play a role in poverty alleviation, they must have wider objectives. They must, for example, not just alleviate malnutrition per se, but empower people, especially women, and spur economic development by linking many sectors of the rural economy. ■

World Population Growth

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increase of even 1 percent in China's population translates into more than 12 million more mouths to feed.) India, with 945 million inhabitants, is expected to overtake China, becoming the most populated country early in the next century.

China has suppressed its birth rate with its widely debated policy of restricting the number of children allowed to



couples. But centrally planned family policies such as China's may not work in other, predominately rural countries, experts note. Even in China population growth rates are higher in rural areas, where the government's enforcement apparatus exerts less control. Within China, political and economic changes—about which speculation has heightened with the recent death of Premier Deng Xiaoping—could affect its family policies.

"China's low birth rate has been in large measure nonvoluntary, and there is a great deal of speculation about what could happen if and when China becomes more democratic and the administration of the central family planning program were to weaken," Haub said. "China could wind up with 3 billion people in the year 2150 if their birth rate rose from 1.8 to 2.5 children per woman."

India saw a decline in its birth rate from an average of 6 children per woman in the 1960s to about 3.5 children today. However, those figures mask an uneven fertility rate among different regions of the vast nation, underscoring the difficulty of predicting future

trends. India's largest states, with populations as high as 150 million people, have average birth rates of 4.8 children per woman. Much of the decline in the country's overall fertility rate has come in the south, where the status and education of women are considered to be higher than in the larger states of the north.

"India has had a history of fits and starts in the decline of its birth rate, which has been a national priority for 30 years," Haub noted. "What happens next? Does the birth rate of the country as a whole continue down to two children per woman, which is what is needed for a stabilized population?"

Family planning must go hand-in-hand with economic development if it is to have its intended effect of lowering birth rates, researchers note. Money for family planning and other human development programs, such as education and health care, which can also factor into lowering fertility, must come from economic growth within developing countries. The need for homegrown resources becomes more acute as development aid declines.

"A lot of these resources have to come from a prospering agricultural sector," said Bruce Johnston, professor emeritus at Stanford University's Food Research Institute. "With agriculture being such an important part of the economy in these countries, a significant part of the tax revenue to fund programs simply has to come from the agricultural sector. If measures to increase agricultural productivity and output are not in place, then the ability of the government to find resources to maintain family planning and health programs is slight."

Another link between agriculture and population is found in the health of infants and children, Johnston said. Good nutrition and adequate food supplies lower infant and child mortality, which in turn can prompt families to give birth to fewer children. As parents gain confidence that their offspring will survive to maturity, they become more receptive to the idea of having fewer children, even if it seems at odds with traditional mores.

Johnston cautions that these trends take time to manifest themselves in

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World Population Growth

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lower population rates, and there is no "silver bullet" approach that will bring down birth rates on its own. Family planning programs work best in the context of economic development and related improvements in health care, education, and nutrition.

"There seems to be a recent tendency to believe that fertility is going to start declining very fast in all lesser-developed countries," he said. "But as long as the economic well-being of people is deteriorating rather than improving, the chance of birth rates being brought down through family planning is very slight."

Global Factors

Globally, the vast number of young people in the world heightens the challenge of controlling population growth. Half of the people living in the world today are under the age of 15. The sheer number of people entering the age of fertility and beginning to bear children over the next decade will cause "population momentum" that will be difficult to control.

"Even if we could immediately get fertility down to the replacement level of two children per woman, population growth would still continue for at least half a century owing to population momentum," said John Bongaarts, vice president of research at the Population Council in New York. "Today's population has such a young age structure that even if they just have two children, they will produce a tremendous number of births."

In addition to the birth rate, deaths from AIDS are now factored into the global population equation. AIDS mortality is expected to rise to unprecedented levels over the coming decades in developing countries, which harbor 90 percent of adults infected with the virus today. The overall AIDS death toll in developing countries will total 14.2 million for the 10-year period between 1995 and 2005, according to U.N. estimates. Asia is expected to see 6.6 million deaths over the 10 years after that. The disease has lowered life expectancy in Africa by 6 years. Even these bleak statistics do not significantly lower the population growth rate, according to the United Nations.

"In spite of the strong demographic impact of the epidemic, population growth rates will remain positive in all of the affected developing countries," reads the Population Division report.

Mouths to Feed

While the debate continues over population projections—and about how to slow population growth—the bottom line remains clear: the planet's limited resources will need to sustain billions of additional people in the coming decades. The challenge for scientists and policymakers will be to develop technology and policies that will permit existing resources to produce greater amounts of food.

Researchers at the International Food Policy Research Institute (IFPRI) used the United Nations' revised population figures to develop new estimates of the world's food needs into the first two decades of the next millennium. IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) simulates a competitive agricultural market for crops and livestock to produce estimates of supply and demand through 2020. The study incorporates supply and demand models for 35 individual countries and regions and 17 commodities.

New IMPACT projections based on the United Nations' revised population forecasts show that total demand for cereals will increase by 43 percent in 2020 over 1993 levels. To meet the demand of a growing population, the world's farmers will need to produce half again as much food as they did in the early 1990s. Nearly all this growth must come through increased yields, researchers note, because there is only limited potential for increasing the amount of land area under cultivation.

"Growing that much more food on existing land is possible, but only with farming technology that increases yields without harming natural resources," said IFPRI research fellow Mark Rosegrant. "With adequate investments and appropriate policies today, food production could increase enough in the future to meet future demand for food. That challenge must be faced now, because new farming technologies can take decades to show results in the global food supply." ■

Photo credits: Pages 1 and 5, World Bank.

China's Future Grain Needs

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baseline projection but still not high enough to cause a global food shortage.

"It appears that China will neither empty the world grain markets nor become a major grain exporter," states the report. "It does seem likely, however, that China will become a more important player in world grain markets as an importer in the coming decades. . . . Exporting countries—especially those dealing with wheat and maize—will undoubtedly be the beneficiaries of these trends in the short run."

Researchers have not reached a consensus on just what China's grain balances are likely to be.

Ultimately though, Huang, Rozelle, and Rosegrant conclude that China's grain balances will depend on decisions made by Chinese policymakers rather than on natural resource constraints. As the report shows, China's level of investment in agriculture will determine how much grain it will be buying on world markets. ■



A 2020 Vision for Food, Agriculture, and the Environment is an initiative of the International Food Policy Research Institute (IFPRI) to identify solutions for meeting future world food needs while reducing poverty and protecting the environment. NEWS & VIEWS seeks to stimulate dialogue and to inform readers of the progress of the 2020 Vision initiative. To offer comments for publication in NEWS & VIEWS or obtain more information about the 2020 Vision and its publications, contact IFPRI at 1200 17th Street, N.W., Washington, D.C. 20036-3006 U.S.A.; telephone: 1-202-862-5600; fax: 1-202-467-4439; e-mail: IFPRI@CGNET.COM; web: <http://www.cgiar.org/ifpri>. IFPRI reserves the right to excerpt and edit NEWS & VIEWS submissions.