

High Grain Prices, Low Food Stocks: What Do They Mean for Future Food Security?

For the past two decades the world has enjoyed bountiful food. Food surpluses in North America and Europe have been common, global food production has been adequate to meet demand, and food prices have been declining in real terms. But last year's sharp rise in grain prices and drops in world grain stocks jarred the world. Are these signs of an impending food crisis or blips in a pattern of long-term food plenty? This question is critical as leaders contemplate the prospects for feeding a world population that is growing explosively.

Experts disagree about the significance of what happened to prices and reserves in 1995. Some say it represents a temporary deviation from a generally favorable path for prices and production. Others argue that it marks a transition to an era of scarce grain and rising prices. Most agree, however, that achieving a higher level of agricultural research in developing countries will be critical to maintaining stable food supplies there.

"In the long term, action taken by governments and the private sector will determine whether these are blips or trends," said James Garrett, a researcher at the International Food Policy Research Institute (IFPRI). Drawing on research supporting IFPRI's *2020 Vision for Food, Agriculture, and the Environment*, Garrett said that if governments continue to invest in agricultural research and technologies and follow the proper economic policies, global grain production will keep up with demand and food prices will continue their decline.

IFPRI put forward its 2020 Vision last year to identify critical issues and the steps that must be taken to provide adequate food for an increased world population in 2020 without massive damage to the environment.

China's Role: A Pessimistic View

A more pessimistic assessment of global food prospects comes from

Lester Brown, president of the Worldwatch Institute and a persistent critic of the way world resources are managed. "Events in international grain markets may mark the early stage of a transition from a buyer's market to a seller's market," said Brown. "Grain prices are likely to rise and importing countries will have to compete for supplies that never seem adequate."

Brown's views center on the uncertainty about grain demand and supply in the countries of the former Soviet Union and, particularly, China. "China has



moved abruptly from being a net exporter of grains to a substantial importer," said Brown. "Grain production has peaked in China, and as rapid economic growth continues and its people diversify their diet, the country will become a massive importer of grain."

Brown's controversial conclusions are based on a broader pattern he sees emerging. "Greater investment in agricultural research, particularly an all-out effort to find an answer to the diminishing responsiveness of crops to

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Feeding People and Protecting the Environment In Densely Populated South Asia

The five largest South Asian countries—Bangladesh, India, Nepal, Pakistan, and Sri Lanka—house between them 21 percent of the world's population on only 3 percent of its land area. This makes the South Asian region one of the most densely populated areas in the world. Nonetheless, South Asia has made impressive strides toward feeding itself over the past quarter century. A recent 2020 discussion paper, *Major Natural Resource Management Concerns in South Asia*, by Gerard J. Gill, examines what the future will hold for South Asia as it grapples with future population growth on a limited natural resource base. The paper is based on a 2020 workshop held in Kathmandu, Nepal, that was jointly sponsored by IFPRI's 2020 initiative and the Institute for Integrated Development Studies (IIDS). The meeting brought together more than 30 social scientists from the region and the two institutes to consider the prognosis for the major countries of South Asia in the areas of food supply, agriculture, health, nutrition, and the environment.

Population estimates for South Asia and the rest of the world, 1993

Country/Region	Population (million persons)	Population Density		Population Growth Rate 1985–92 (percent/year)
		Per Kilometer	Per Hectare of Arable Land	
Bangladesh	122.2	938.8	13.9	2.6
India	896.6	301.6	5.4	2.1
Nepal	21.1	154.1	9.1	3.0
Pakistan	128.1	166.1	6.2	3.1
Sri Lanka	17.9	276.9	19.2	1.3
South Asia	1,185.9	290.9	6.0	2.2
Rest of the world	4,386.5	34.6	3.8	1.6 ^a

Source: Calculated from Food and Agriculture Organization of the United Nations, *World Food Model* (Rome, 1993); and United Nations, *United Nations Demographic Yearbook 1992* (New York, 1994).

^aEstimated figure for 1985–90 only.

How Viable Are Employment Programs for Food Security in Sub-Saharan Africa?

(Based on 2020 Brief 28, *Employment Programs for Food Security in Sub-Saharan Africa*, by Tesfaye Teklu)

Employment programs, particularly labor-intensive public works, have a long history in Sub-Saharan Africa, dating back to the 1960s. The programs expanded rapidly in the 1980s and early 1990s mainly because of concern about the increasing problem of insufficient employment. There was a sharp decline in the growth of employment in Sub-Saharan Africa in the 1980s, and this decline, combined with the rapid growth of the labor force, led to rising unemployment and underemployment and widespread poverty. A 2020 brief examines the objectives of these labor programs, their short-term effects, and the policy issues associated with them.

The brief concludes that labor-intensive public works have the potential to serve as both short-term sources of employment and long-term generators of growth and productivity increases. They can be designed cost-effectively to alleviate poverty and improve food security, and this function can be further strengthened if combined with other food security-enhancing policies and projects. However, policymakers, donors, and researchers need to pay close attention to improving the design of public works and to searching for the right portfolio of intervention instruments.

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additional fertilizer, is needed," said Brown. "However, it's not clear at all that scientists can provide new technology rapidly enough to meet the need, particularly in the face of population growth and environmental mismanagement. For example, oceanic fish catches are declining and fish farming depends on heavy use of grains. Optimistic predictions of increased grain crops are based on extrapolations from current output and fail to take into account topsoil loss and other forms of environmental degradation. All of this will lead to sharper global competition and higher prices for grain, with the economic burden falling most heavily on low-income, grain-importing countries."

Fall in Grain Stocks No Threat?

At the opposite pole of the discussion is Dennis Avery, director of research on food issues for the Hudson Institute. "The fall in grain stocks is a direct result of government policies and poses no real threat to global food security," said Avery. "The governments in the United States and the European Union have been stocking more grain than they needed, which is expensive and contributes little to food security. The real story behind last year's falling grain stocks is not that we're down to a lean stock, but that we've stopped holding uselessly large stocks in the name of farm politics."

Avery said that an effective buffer against grain scarcity and higher prices exists in the 650 million tons of feedgrains consumed annually. One hundred million tons could be readily diverted from feed to human food use in case of need, as has been done on a smaller scale in the past.

Avery is confident that farmers will respond effectively to open markets by increasing production. "Real free trade is the way to food security," said Avery. "Land previously put into conservation set-asides in the United States or uncultivated lands, such as pampas pasture in Argentina, could be readily brought into production. The safest way to boost output is to depend on land with the best soil chemistry and the best structure rather than resort to farming marginal lands with the risk that brings of

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Ghana's 2020 Vision Seeks to Sustainably Increase Agricultural Food Production

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 Ibrahim Adam, Minister of Food and Agriculture for Ghana. Adam is also a member of the 2020 International Advisory Committee.

NEWS & VIEWS: Ghana has developed "The 2020 Vision: The First Step," its own set of actions and a vision for human well-being in the year 2020. What are the major challenges Ghana faces in reducing poverty and hunger in the coming years to meet this 2020 Vision?

We face several challenges. Population growth is of great concern. The rate of growth of our population has almost outstripped that of agriculture, as we now have more hungry mouths to feed than we anticipated years ago. Another challenge is our ability to raise resources to implement our agricultural policies and programs. This is especially important in light of the heightened competition for increasingly scarce financial resources between developing countries and the Eastern European countries. The degradation of the environment and difficulties associated with technology dissemination are also worth mentioning.

Another challenge is the increasing need for better rural infrastructure in support of agriculture. Our studies indicate that up to 70 percent of the price of food in urban areas is attributable to marketing costs. Any investment in this area would be worthwhile. Food processing also poses great challenges. Because of limited investment in agricultural processing, very little value is added to produce before marketing, so farmers have a limited market output. They also record high postharvest losses because of inadequate storage facilities. Finally, the empowerment of women in agriculture and related fields is still limited to the lucky few who know where to borrow money or live in special foreign-funded project areas. A more equitable arrangement that improves access of rural women to formal credit and technology is our priority.



Ibrahim Adam

NEWS & VIEWS: The number of malnourished children in Sub-Saharan Africa could increase by as much as 50 percent between 1990 and 2020 to reach 43 million. What has Ghana done to alleviate hunger and malnutrition among its children, and what lessons have been learned in Ghana that might be relevant to other countries in Sub-Saharan Africa?

We have stepped up education of women concerning technological packages that can improve the nutrition of their children, and we have created a department responsible for nutrition and women's affairs in our ministry. This department operates through nutrition centers throughout the country and collaborates with nongovernmental organizations and rural health workers through seminars, workshops, and group discussions.

Malnutrition and hunger are not rampant in Ghana, but when droughts and other natural disasters strike, children are the first to show signs of hunger. When crises hit, the nutrition centers provide food aid to affected children and their mothers.

One lesson we have learned that is relevant to other countries in Sub-

Saharan Africa is that rural women must be empowered to generate enough income of their own rather than having to rely on handouts. We have found that when women are self-supporting, the nutrition of their children improves more rapidly and more sustainably than it does when food aid is dished out to them.

It is also important for African governments to see nongovernmental organizations as partners in development rather than rivals for government funds. Governments must share information on food security with nongovernmental organizations, who are often able to mobilize resources more quickly than governments.

NEWS & VIEWS: Ghana has had an almost stagnant growth rate in its agricultural GDP during the past few years. What solutions is Ghana pursuing to increase agricultural productivity while also reducing poverty?

Agricultural growth in Ghana has slowed down of late because of some drastic policies put in place to address economic and environmental problems. For instance, we have experienced a consistent depreciation in the value of our currency relative to other currencies for some years now. This has naturally made agricultural inputs unaffordable for the average farmer or fisherman, thus reducing agricultural production. The situation has been worsened by the reluctance of financial institutions to lend money to farmers and fishermen at reasonable interest rates, at the right time, or in the right amounts. Marketing constraints have not helped.

However, the food production picture is not as bad as some people paint; it has improved every year since 1993. But the same cannot be said for agricultural growth, because the international

definition of agriculture includes forestry, whose growth has been slowed by new conservation policies.

To increase agricultural productivity, we are removing all restrictions on the marketing of food, so that farmers will be free to export whatever they produce regardless of local stock levels. We also now have a credit component in all of our smallholder agricultural programs to improve farmer and fisherman access to formal credit, but such programs are too few to have

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the desired impact. We are seeking to enhance agricultural growth through better rural infrastructure, particularly roads and access tracks, as well as village and farm-level storage facilities. We have revamped our agricultural extension network to make it more efficient in technology dissemination. We have just embarked on an agricultural modernization program that aims to reduce drudgery in farming through mechanization. The private sector is being encouraged to invest in agricultural marketing.

NEWS & VIEWS: Ghana has sought to revamp its agricultural research system. What has it done and what are the results of these efforts?

The first thing we did was to encourage farmers to play a larger role in determining research priorities. Before, our researchers were doing academic research that was only marginally relevant to the priorities of the nation. Now, the minister of food and agriculture, farmers, and researchers collectively determine what kind of research will be conducted. The communications gap between researchers and extension officers has also been narrowed considerably, as has the gap between extension officers and farmers and fishermen. This gap has largely been overcome through an improvement in the transportation of

field staff and scientists. We have also set up regional and district research liaison committees on which researchers, extension workers, farmers, fishermen, industrialists, marketers, and policymakers are represented. These grassroots committees see to the implementation, coordination, and monitoring of research policies. A new position of deputy director general of agricultural research has been established in the Ministry of Environment, Science, and Technology to coordinate agricultural research programs and activities.

These activities have minimized wastage in research and made research topics more relevant to farmers' needs. Collaboration between all parties involved in agricultural research is also much better. Extension workers and researchers now enjoy greater job satisfaction and are more motivated because they see the results of their work more often.

NEWS & VIEWS: What is Ghana doing to preserve its natural resource base as it focuses on increasing agricultural production? What steps is the country taking to ensure that feeding its people will not come with a large environmental cost?

The main natural resources we in agriculture should worry about are forests, land, and water. Elaborate conservation methods have been put in place to slow the exploitation of timber resources without necessarily hampering agricultural development. Our Trees and Timber Act regulates the exploitation of timber and encourages the local processing of logs to generate more employment at home. We have similar legislation for the conservation of wildlife through game parks and game reserves.

Soil and water management now enjoy top priority in our national agricultural policies. We are encouraging farmers to cultivate hillsides through terracing and urging upland rice farmers to establish small ridges or "bunds" along the contours of farm lands to minimize erosion. We are also encouraging contour farming to slow down the movement of water in the fields, and we have embarked on a program that encourages communities

to plant trees and grasses in the catchment areas of dams and dugouts to reduce erosion and siltation. An Agroforestry Unit in the Ministry of Food and Agriculture introduces farmers to trees and shrubs that combine well with their food crops, either in rotation or in combination. This is ultimately expected to reduce the dependence of farmers on chemical fertilizers. Our policies also encourage integrated pest management, involving the use of biological control of pests.

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A package of laws and policies has been introduced to prevent over-exploitation of our marine and freshwater resources. For instance, certain types of fishing nets are not allowed in our waters, and the use of explosives and oversized fishing vessels is prohibited.

NEWS & VIEWS: Ghana depends on rainfed agriculture for most of its crop production, which leaves it vulnerable during periods of low rainfall. Do you envision expanding irrigation within the country, and if so, how will this be accomplished?

Presently, less than 1 percent of Ghana's total agricultural output comes from irrigated fields. We are therefore almost entirely at the mercy of the weather as far as food production is concerned. This is clearly not acceptable, especially in light of the fact that rainfall is becoming increasingly unreliable and the population of the country is growing rapidly. We have therefore decided to invest more in small- and medium-scale irrigation projects that will be owned or managed by their users—the farmers. We are also embarking on a nationwide evaluation of our underground water resources with a view to determining their sustainability for small-scale irrigation. The private sector is also being encouraged to invest in irrigation, for the government cannot go it alone.

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environmental damage. Agricultural researchers will be able to continue to provide technology to improve crop yields on prime farmland if investment in research is sustained. Research not only is necessary to increase production, but provides the only proven approach to preserving the environment."



Grain-Exporting Countries Change the Rules of the Game

According to IFPRI's James Garrett, the macroeconomic setting and agricultural policy are important influences on grain supply and demand. "Difficulties with economic transition in the countries of the former Soviet Union and China have led to production declines there. The biggest recent declines in grain stocks have occurred in the European Union, where shifts in farm policy have resulted in cuts in grain surpluses," said Garrett.

The U.S. Department of Agriculture's main outlook on crop supply and demand takes these policy changes into account. "Our baseline projections for the next 10 years assume a lessening of government influence in markets and an agricultural sector able to react more efficiently to signals from the marketplace," said Paul Westcott, with USDA's Economic Research Service. "Reduced barriers to international trade will also encourage increased production. Farmers' response to the market will make it possible to avoid a food crisis."

The USDA prognosis is based on a "no shocks" scenario, which, for

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Vision 2020 in Malaysia: On the Way There

By Noordin Sopiee, Director General of the Institute of Strategic and International Studies (ISIS) in Malaysia

Five years ago, Malaysia created "Vision 2020," an apt title for a program conceived under a prime minister with a medical background. As everyone who has had an eye test knows, "20/20" is perfect vision. In the world of public policy, perfection is always sought and rarely accomplished. Many Malaysians, however, believe that the lofty economic goals of Vision 2020 will be met easily.

Vision 2020 sets out to double Malaysia's gross domestic product (GDP) every 10 years, so that by 2020 Malaysia will have a GDP eight times larger than in 1991. This will require an average growth rate of just over 7 percent per year over the coming decades.

If Vision 2020 is realized, the average Malaysian will be four times better off. Malaysians will have a standard of living slightly higher than that of the United States. Vision 2020 cannot be faulted for a lack of ambition. And, at the rate we have been going since Vision 2020 was launched, we might be able to achieve its economic objectives five years ahead of schedule.

Malaysia has gone through a decade of successful structural economic reform. Just one set of statistics will make the point dramatically. In 1980, manufactured goods accounted for 22.4 percent of the country's exports. By 1994, this had shot up to 78.2 percent.

Other factors are also coming together, including demographic changes. Many of the economies with which the country will compete in the years to come will be weighed down by a deteriorating workforce-to-dependents ratio. But in Malaysia this ratio is projected to peak precisely in 2020, when an awesome 61.1 percent of the country's total population will be of working age. (By contrast, in many developed countries the majority of the population will consist of elderly and retired people.)

Perhaps the most important factor working for Malaysia is the pragmatic and flexible set of policies and strategies

that have evolved over a decade and that are known as the "Winning Formula."

In brief, that Winning Formula is made up of the following principles:

- Rely on the private sector as the primary engine of growth.
- "Right-size" the public sector, and ensure government withdrawal from unnecessary production and unproductive intervention.
- Continue the process of productive deregulation and privatization.
- Pursue the Accelerated Industrialization Drive, vigorously expand small- and medium-scale industries, and encourage rapid development of industrial technology.
- Continue to rely on export-led growth while liberalizing the Malaysian economy to imports from abroad.
- Emphasize foreign investment, but execute a vigorous domestic investment drive as well.
- Ensure vigorous development of infrastructure.
- Focus on development of human resources and entrepreneurship.
- Tightly control inflation, and maintain a competitive exchange rate.
- Modernize the services and agricultural sectors, and ensure a second rural development transformation.
- Make sure development is environmentally sustainable.
- Foster an information-rich society.
- Continue an active program of economic diplomacy.
- Ensure "Malaysia Incorporated," one nation pulling together in one direction toward agreed-upon goals.

No one can foretell the future, and Vision 2020 must evolve with the passage of time. But if Malaysia adheres to the course that it has set for itself, which has secured the widest and deepest national consensus in the country's history, it looks set to achieve the economic aspirations of Vision 2020.

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example, postulates normal weather. And like other projections, the USDA's prognosis identifies China and the former Soviet Union as the source of the greatest uncertainties affecting the global grain trade. But the USDA's projections focus on domestic supply and demand and trade prospects for American farmers and processors and do not specifically assess global effects of emerging trends.

James Hill, an economist with the United Nations Food and Agriculture Organization (FAO), is optimistic that food needs will be met in the next century but cautions that several variables must be taken into account.

"The rate of population increase and weather conditions are major factors," said Hill. "Also crucial is the ability of developing countries to provide adequate, sustainable development in agriculture. Avoidance of civil conflicts, control of soil degradation, and better management of water resources are all important to sustainable development. FAO regards Africa as a critical area."

Hill views strong investment in agricultural research as essential but "doesn't see crop yields increasing at the spectacular rate they did during the peak years of the Green Revolution because many new technologies are, at this point, not within reach."

Immediate Future a Cause for Concern

Whatever the future trends in grain supply and demand prove to be, the immediate future is a cause for concern. FAO's October 1995 *Food Outlook* report calls the coming year's cereal harvests "crucial for world food security." Stocks at the end of the current crop year are projected to be 13 percent of consumption, well under the 17 percent FAO regards as a safe minimum. A 5 percent increase above the 1995/96 total harvest is necessary just to meet demand without doing anything to replenish reserves.

IFPRI's Garrett notes signs of confidence in the commodities market that production will rise in the coming year. "Futures prices for grain are lower, but if there's a weather shock, things could be different," he said.

Foreign Aid Cuts, Other Policy Changes Could Hinder Food Aid

For international organizations such as FAO and IFPRI, the impact of these trends on developing countries is a central concern. Experts agree on the importance of maintaining investment in agricultural research as a way to achieve higher yields of grain in developing countries. Also of great concern are what Garrett calls "important questions about the influence of policy changes."

The reduced role of government in grain markets and the liberalization of

trade appear to signal the end of an era when governments controlled large grain surpluses. Without these reserves, future food emergencies in developing countries cannot be met without substantially affecting grain prices. Cutbacks in foreign aid funds will further restrict the capacity of traditional exporting countries to respond to emergencies.

Leaving aside food emergencies, Garrett acknowledges that higher grain prices in a free market can benefit farmers in developing countries, but observes that "in general, higher international prices hurt poor countries that import a significant portion of their food. Sharp price increases can fuel inflation in these countries, place severe pressure on foreign exchange reserves, and have adverse effects on macro-economic stability and investment."

According to Garrett, the long-term answer is to reduce poverty in developing countries that import food so that farmers there can respond quickly to food emergencies and households can afford to purchase food. Meanwhile, unless exporting countries, international organizations, and developing countries devise new mechanisms to deliver food relief in the inevitable emergencies, people in poor countries could be left without the means of bare survival.

Photo credits: Page 1, IFPRI; page 5, Consultative Group on International Agricultural Research.

New Publications

- *A 2020 Vision for Food, Agriculture, and the Environment: The Vision, Challenge, and Recommended Action*. This document, based on past IFPRI research and on analyses and syntheses conducted as part of the 2020 Vision initiative, outlines the 2020 Vision and what it will take to make it a reality.
- Discussion Paper 6, *A 2020 Vision for Food, Agriculture, and the Environment in Latin America*, edited by James L. Garrett, 20 pages.
- Discussion Paper 7, *Agriculture, Trade, and Regionalism in South Asia*, by Dean A. DeRosa and Kumaresan Govindan, 24 pages.
- Discussion Paper 8, *Major Natural Resource Management Concerns in South Asia*, by Gerard J. Gill, 29 pages.
- Discussion Paper 9, *Agriculture, Techno-*

logical Change, and the Environment in Latin America: A 2020 Perspective, by Eduardo J. Trigo, 19 pages.

- 2020 Brief 26, *Perspectives on European Agriculture in 2020*, by C. Folmer, M. A. Keyzer, M. D. Merbis, H. J. J. Stolwijk, and P. J. J. Veenendaal.
- 2020 Brief 27, *Nondegrading Land Use Strategies for Tropical Hillsides*, by Lee Ann Jackson and Sara Scherr.
- 2020 Brief 28, *Employment Programs for Food Security in Sub-Saharan Africa*, by Tesfaye Teklu.
- 2020 Brief 29, *Poverty, Food Security, and the Environment*, by Per Pinstrup-Andersen and Rajul Pandya-Lorch.
- 2020 Brief 30, *Rising Food Prices and Falling Grain Stocks: Short-Run Blips or New Trends?* by Per Pinstrup-Andersen and James L. Garrett.

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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. IFPRI reserves the right to excerpt and edit NEWS & VIEWS submissions.