The key question for developing countries and for poor people in those countries is not whether globalization occurs but what form it takes.

"
To develop and implement successful policies, policymakers need a clear picture of the options at their disposal and the likely results of their choices. Generating this information can take considerable time, particularly when researchers must collect primary data and develop models. Thus, researchers must look ahead to predict what kinds of information policymakers are likely to need several years into the future. In this period of rapid technological development and changing economic and social conditions, making accurate predictions can be difficult, but failure to do so may result in research that addresses yesterday’s needs and studies that languish unopened on the shelf.

In 1998 IFPRI undertook a yearlong effort to identify the emerging issues and unfinished business relevant for food policy for developing countries in coming decades. We collected viewpoints from a broad constituency, including the various groups with a stake in IFPRI’s work, using correspondence and meetings both at IFPRI and around the world. We consulted with food policy researchers, advisers, policymakers, and donor representatives. Participants included economists, sociologists, nutritionists, agricultural scientists, politicians, and individuals with other disciplinary and occupational backgrounds. In addition, we solicited the views of IFPRI’s staff, management, and Board of Trustees.

These consultations revealed a number of emerging research issues for IFPRI’s consideration. Setting priorities for food policy research in today’s dynamic environment is an ongoing activity that benefits from debate. The issues described here are important elements in the continuing debate on how IFPRI and the broader community of food policy researchers and advisers can be most effective as we enter the new millennium.

EMERGING ISSUES
Increasing Globalization
International trade liberalization, the opening up of economies in both developed and developing countries, more integrated international capital markets, and a freer flow of labor, information, and technology are all part of a trend toward increasing globalization that is likely to continue and may even accelerate. The key question for developing countries and for poor people in those countries is not whether globalization occurs but what form it takes. Research is needed to show how globalization can be designed and guided to reduce poverty, improve the food security of low-income people, and promote sustainable productivity increases in developing-country agriculture. Research must also identify domestic policy changes that developing and developed countries can undertake to avoid the negative and maximize the positive effects of globalization for
developing countries in general and poor people in particular.

**The Technological Revolution**
Rapid technological developments in molecular biology, information, communication, and energy are changing how food is grown, processed, and marketed, particularly in developed countries. Food policy research is needed to determine how developing countries can best use the new opportunities to benefit the poor and to sustainably manage natural resources, while also managing new risks and uncertainties.

The new technologies raise many questions: What biosafety and food safety regulations are necessary to minimize the risks posed by new technologies? What kind of biological research and development would do most to solve the critical problems facing small farmers and poor consumers? How can satellite-based cell phones and solar panel–based generation of energy be used to improve rural infrastructure in low-income countries and remote regions? How can more exclusive patents for biological technology be used to improve the food security of the poor? Can traditional knowledge, plant materials, and experience be protected from exclusive patenting through, for example, farmers’ rights legislation?

**Food Safety**
In developed countries concerns about food safety are on the rise, influencing public perceptions and policies regarding the production, processing, transportation, storage, international trade, and preparation of food products. In developing countries, however, where food- and waterborne health risks are a major cause of illness and death, particularly among infants and children, food safety concerns have garnered little attention. Nonetheless, developed-country attitudes are likely to affect developing countries in two major ways. First, exports of food commodities from developing countries will be exposed to more demanding food safety standards. Thus, food safety requirements may hinder developing countries from achieving the potential benefits of export trade, either because they cannot meet reasonable standards or because importing countries may use food safety regulations as trade barriers. Second, changing attitudes and new legislation in developed countries will spill over into developing countries.

What policies and institutions are needed to meet new standards for food production, processing, and distribution in a cost-effective way? Will these policies and institutions be appropriate for the domestic food supply, or should developing countries maintain different standards? Is there a widening gap in food safety standards between developed and developing countries or between

“
*What kind of biological research and development would do most to solve the critical problems facing small farmers and poor consumers?*
”
poor and nonpoor population groups because of differences in subjectively acceptable risk levels?

What would be the consequences of enhanced food safety standards for food security among low-income producers and consumers?

The Role of the State and Good Governance

Many developing countries have undertaken policy and market reforms in recent years, changing the roles of the state, the market, private voluntary organizations, and the private sector. These reforms, however, have produced disappointing results in many countries. One major reason is the lack of knowledge about the proper role of each of these agents in new socioeconomic and political environments.

The role of the public sector appears to be shrinking in many areas related to food security, while civil society, the private sector, and private voluntary organizations are taking on increasing importance. While such a shift may be appropriate, it can be taken too far. An effective public sector is crucial to develop and maintain rural infrastructure, health care, education, a legal system, agricultural research focused on small farmers, and public goods in general. As market liberalization and globalization take place, effective government is needed to facilitate privatization and guide the transformation of the agricultural sector in a direction that is beneficial for the poor. Research can generate the information required to assure success in these transformations.

The study of how governance (including democracy, adherence to human rights principles, the rule of law, and empowerment of civil society) affects transaction costs, the efficiency of food systems, and poor people’s access to food should take high priority, and efforts should be made to identify appropriate governance structures.

Rapid Urbanization

Between 2000 and 2025, the urban population of the developing countries is projected to double from approximately 2 to 4 billion people, while the rural population is expected to increase by only 2.7 percent. With business as usual, it appears that the number of poor as well as the number of food insecure and malnourished will increase rapidly in urban areas. Consequently, there will be a significant shift in poverty, food insecurity, and child malnutrition from rural to urban areas, even though the prevalence of these conditions will continue to be high in rural areas.

Past food policy research in low-income developing countries has appropriately focused on rural areas. Now, the challenge to food policy is to provide an empirically sound basis for policy and
program formulation in urban areas, particularly as it relates to low-income people’s ability to acquire food, health care and other basic necessities. Policy research will also be needed to guide policies to ensure an efficient future food supply for the rapidly increasing urban populations.

Rural Industrialization

The processing, storage, and distribution of agricultural commodities adds value to the commodities produced while generating employment for the rural poor. But in many developing countries, particularly the poorer ones in Sub-Saharan Africa, the agricultural processing industry is underdeveloped. As trade liberalization proceeds, failure to develop an effective and efficient postharvest sector may relegate low-income countries to being mere suppliers of cheap agricultural raw materials, thus eliminating opportunities for greater income and more jobs.

The development of an efficient postharvest sector in rural areas of poor countries is complex and knowledge intensive. Choosing appropriate policies and institutions is critical, and more information is needed to support such choices. Policy research must explain why the postharvest sector is vibrant in some developing countries and stagnant or virtually nonexistent in others.

Armed Conflict and Food Security

Conflicts in countries such as Burundi and Rwanda are frequently characterized as the results of tribal or political issues, when, in fact, the underlying causes are natural resource degradation, extreme poverty, and widespread food

Village children in Malawi (Meyra Mendoza)
insecurity. Such conflicts in turn breed further food insecurity, poverty, and natural resource degradation, continuing a vicious circle of hunger and instability. Technologies and policies capable of improving food security will decrease the probability of conflict. The interaction between conflict, food security, natural resource management, and agricultural research deserves more attention from the food policy research community.

Risk Management and Coping Strategies
Globalization and increasing climatic fluctuations are likely to introduce new risks and uncertainties in the food and agricultural sector. Economies will be more interconnected, resulting in new risk factors such as dependence on external food supplies, and individual producing and consuming agents as well as sectors will be less protected by government as liberalization and globalization proceed and subsidies are reduced.

Fortunately, new and innovative approaches to risk management in food production, distribution, and consumption, including new instruments for controlling financial risk such as futures trading, are beginning to surface. Better climatic forecasting and data from geographic information systems are also becoming available. Results from recent work on coping strategies, including social or food security safety nets, add to the arsenal of approaches for managing risks that particularly threaten the poor. However, the application of these new tools is lagging, and appropriate private and public institutions have yet to develop.

The challenge to food policy research is to provide the information needed to design effective insurance schemes and coping strategies and to help identify appropriate private and public sector institutions.

Growing Water Scarcity
Unless properly managed, fresh water may well emerge as the most important constraint to global food production. While supplies of water are adequate in the aggregate to meet demand for the foreseeable future, water is poorly distributed across countries, within countries, and between seasons.

The costs of developing new sources of water are high and rising, and nontraditional sources such as desalination, reuse of wastewater, and water harvesting are unlikely to add much to global water availability in the near future, although they may be important in some local...
or regional ecosystems. So how can the rapid increases in water demand stemming from population and income growth be met? The rapidly growing domestic and industrial demand for water will have to be met with reduced use in the agriculture sector, by far the largest water user. Required policy reforms include establishing secure water rights for users; decentralizing and privatizing water management; and setting incentives for water conservation. Research is needed to guide policymaking and institutional changes that will improve water use efficiency and allocation of water among competing uses.

**Declining Soil Fertility**

Improved soil fertility is a critical component of low-income countries’ drive to increase sustainable agricultural production. Although locally available organic materials can meet some of the need, such materials are insufficient by themselves. Nitrogen-fixing legumes and research to develop nitrogen-fixing cereals offer new opportunities, but inorganic fertilizer will continue to be an important source of plant nutrients. Yet the use of chemical fertilizers has decreased worldwide during the last few years, particularly in the developed countries and in parts of Asia. Reduced use of fertilizers is warranted in some locations because of negative environmental effects, but in countries where soil fertility is low and a large share of the population is food insecure, fertilizer use must be expanded.

In many low-income countries, a cost-effective fertilizer sector and policies providing incentives for farmers and communities to implement soil fertility programs are needed. Food policy research must generate the information needed to help policymakers solve the soil fertility problem in a way that is compatible with fiscally sound public investments, improved food security, and environmental sustainability.

**Social Capital**

Social capital has many definitions, but its main components are the depth and breadth of an individual’s network of friends and family, level of civic participation (for example, voting activity), and level of participation in community and other groups such as church groups, credit and savings groups, and social groups. Strong communities made up of actively involved individuals and groups provide the basis for a thriving process of exchange for mutual gain in times of plenty and hardship—an important system for mitigating the negative impacts of shocks.

Recent studies of social capital may herald an exciting research and action agenda related to the roles of government and civil society, but they also raise questions. For example, does social capital lead to higher consumption or vice versa?
Do women produce social capital that is used to prevent households from falling into poverty? Is men’s social capital more effective in improving upward mobility in income? How can government stimulate the accumulation of social capital? Would even well-meaning attempts to create social capital simply crowd out the existing networks?

**UNFINISHED BUSINESS**
The kinds of knowledge policymakers will need in the future depend not only on emerging issues but also on issues that have been on the agenda for a while and about which more information is still needed. In my interpretation of the results from the consultations, eight such areas of unfinished business emerged.

**Increasing Poverty**
Although the percentage of the population in developing countries considered poor is falling, the number of people whose income falls below US$1 a day is currently in excess of 1.3 billion and rising. The deterioration is particularly severe in Sub-Saharan Africa, which is projected to contain an increasing share of the world’s poor over the foreseeable future. Clearly, without a reversal of the poverty trends, improvements in food security will be very limited if not illusory.

**Food Insecurity and Malnutrition**
According to the United Nations Food and Agriculture Organization, more than 800 million people are food insecure. Micronutrient deficiencies are even more prevalent, affecting more than 2 billion people. With business as usual, neither the World Food Summit goal of reducing the number of food-insecure people to 400 million by 2015 nor the 2020 Vision of eliminating food insecurity and malnutrition by 2020 will materialize. In fact, IFPRI projections show only a moderate decrease in the number of malnourished children by 2020. It is now apparent that lack of political will and competing priorities are major reasons why progress toward the elimination of food insecurity and malnutrition has been so slow. However, lack of political will and competing priorities are themselves researchable topics. The challenge to food policy research is to improve the understanding of the political economy of food security, with an emphasis on the decisionmaking processes related to the allocation of fiscal resources among competing demands.

**Gender-Specific Aspects of Food Policy**
Women’s status continues to be low relative to men’s, particularly in South Asia, West Asia, and North Africa. The costs of gender inequities are difficult to estimate, but data show that they substantially lower agricultural productivity, reduce household food security, and worsen child growth.
Men’s income and women’s income (or credit or assets) have different marginal effects on the welfare of households and individuals, according to recent studies. The implications for the design of transfer programs are clear: interventions should be targeted to women when the benefits of doing so outweigh the costs. In the longer run, if such gender-differentiated interventions improve the status of women in the household, they can lead to increased agricultural productivity, fertility reduction, food purchases, nutrition, and improved educational attainment to name a few. More research, however, is required to guide future policy design and implementation to capture the benefits from gender specificity of such policies.

**Pressure on Less-Favored Lands**

In coming years the world’s farmers will need to produce more food on existing agricultural land to keep up with population increases, income growth, and dietary changes. Past efforts to raise agricultural productivity in developing countries have focused on irrigated and high-potential rainfed lands, but population growth has put increasing pressure on lands less suitable for farming. Poverty, food insecurity, and natural resource degradation are becoming extremely serious problems in these areas. The challenge to food policy is to help alleviate the knowledge gaps facing policymakers and communities about the most appropriate action and to draw attention to the risks and opportunities associated with alternative approaches to development of these less-favored lands, with emphasis on the impact on poverty, food insecurity, and management of natural resources.

**Inappropriate Property Rights to Land and Other Natural Resources**

Property rights are important determinants of household income and food security, agricultural productivity, and natural resource management. Population growth and increased commercialization in rural areas lead to greater competition over natural resources and thus greater pressure on existing property rights institutions. Traditional communal ownership systems in many areas are evolving toward increasing privatization or open access. Policy research is needed to analyze the impact of alternative property rights institutions on poverty, food insecurity, and natural resource management and the role of collective action and national policies.

**Poorly Functioning Rural Capital and Labor Markets**

How well rural producers adjust to an increasingly global economy will depend partly on how well rural capital and labor markets work. Microcredit is now widely available to the poor in many developing countries, but farmers, traders, and processors in rural areas still have little access to institutional credit. Because of the new global forces, efforts to develop rural banks are more likely to be successful now.
than in the past, and the task is more urgent than ever.

Rural labor markets are undergoing rapid change: they are more monetized than in the past, participation of women is increasing, and labor is becoming more mobile. Rural labor markets are crucial not only to enable rural landless workers to generate income, but also to allow farmers and small enterprises in rural areas to produce goods and services in increasingly commercial environments. Because the forces in rural areas are changing so quickly, adjustments in labor markets often fail to keep pace. Research on labor market issues and problems has therefore become critical.

**Needed Reforms of Agricultural Input and Output Markets**
Progress toward efficient, effective, and competitive private markets for agricultural inputs and outputs has been slow in many developing countries. Countries must find the proper balance between facilitating private sector participation and state intervention to reduce transaction costs, shape an appropriate legal environment, promote effective competition, and ease the transition for low-income producers and consumers. Policy research on the operation of local markets, the behavior of private traders, and the effects of alternative policies and institutions is needed to guide government action.

**The Impact of HIV/AIDS on Food Security**
The devastating effects of HIV/AIDS on the well-being of millions of people and the grim prospects for rapid expansion, particularly among low-income people who cannot afford the new drugs, have serious implications for future food security. Today 21 million Africans are infected, and about 95 percent live in abject poverty. In addition to the direct health effects on the individuals, HIV/AIDS affects food security by reducing earning opportunities for unhealthy adults, by leaving children with no parents (about 8 million children in Sub-Saharan Africa have been orphaned by AIDS), and by placing increasing demands on scarce public resources for health.

Policy research is required to address the access that poor rural and urban households have to AIDS prevention programs and related health care and the impact of HIV/AIDS on agricultural productivity, income earnings, and child nutrition. Researchers should identify feasible policy options to mitigate the negative food security and nutrition effects.

**BROADENING IFPRI’S RESEARCH AGENDA**
The results of IFPRI’s consultations on emerging issues and unfinished business will not revolutionize IFPRI’s work, for the institute is already conducting research on a number of the topics raised. The exercise did, however, suggest ways in which IFPRI might modify some of its research activities to meet anticipated needs and offer several new topics for consideration. Our decisions about how to respond to these emerging issues and unfinished business will be shaped partly by IFPRI’s unique food policy niche. IFPRI recognizes that it alone cannot tackle all of the food policy research issues required to make a difference and that it will take the concerted efforts of many committed organizations, individuals, and governments to find solutions to these global problems. But for the issues that IFPRI is particularly well suited to study, the consultations offered a wealth of information that will help guide our research and outreach as we enter the new century.

*Per Pinstrup-Andersen is director general of IFPRI.*