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***Strengthening Partnership in Agricultural Research
for Development in the Context of Globalization***

**KEYNOTE ADDRESS ON
POLICY MANAGEMENT AND INSTITUTIONAL
DEVELOPMENT***

Per Pinstруп-Andersen
IFPRI

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POLICY MANAGEMENT AND INSTITUTIONAL DEVELOPMENT*

Per Pinstrup-Andersen**

INTRODUCTION

Government policy and institutions are of critical importance in efforts to assure food security for all in a manner compatible with sustainable management of natural resources. Similarly, technological change is an essential component of such efforts. To be successful, action by governments must be based on a comprehensive understanding of the interaction between technology, policy and institutions. Even the best of technology may fail to achieve its social objectives if the policies are inappropriate or if appropriate institutions are missing. Lack of investments in rural infrastructure, low-price policies for agricultural products and high prices for fertilizers and other inputs, poorly functioning markets, inappropriate allocation mechanisms for water, unclear property rights and examples of policies and institutions that may render new technology useless for the farmers and the society.

In order to design and implement appropriate policies and institutions, decision-makers must have access to relevant and timely knowledge about policy options and their likely consequences. It is the role of policy research to generate such knowledge. The specific knowledge needs and related research priorities vary across countries and over time. The first and major part of this paper suggests a set of priorities for policy research likely to be relevant for many although not all developing countries. The priorities are based on consultations with a large number of individuals over a one-year period. The second part of the paper briefly discusses options for the implementation of the policy research and the role of GFAR.

PRIORITIES FOR POLICY RESEARCH

Technological Change

Rapid technological developments in molecular biology, information, communication, and energy are placing new demands on food policy research to improve the understanding of how the new opportunities can best be utilized for the benefit of the poor and their food security and for sustainable management of natural resources, while managing new risks and uncertainties. The impact of the new technology on low-income people and their food security will to a very large extent depend on accompanying policies. The choice, design, and implementation of appropriate policies to guide technology development and use for the benefit of the poor currently suffer from a very weak knowledge base. In the absence of solid conceptual and empirical knowledge, the action by governments, the for-profit private sector, and civil society is excessively influenced by ideology and unsubstantiated claims about risks and opportunities. Lack of appropriate facilitating and regulatory policies and related low levels of public investment in public-goods creating research is a major reason why potential benefits from the new technology are not reaching low-income people in developing countries.

Policy research is urgently needed to help guide and support technological development. Such research should focus on intellectual property rights questions, particularly as they relate to institutional requirements in developing countries; biosafety and food safety regulations; markets for improved

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** Director General of the International Food Policy Research Institute, 2033 K Street, N.W., Washington, D.C. 20006-1002, U.S.A. · tel. 202-862-5600 · fax. 202-467-4439 · e-mail: IFPRI@cgiar.org · web: www.ifpri.org.

seed; solar panels, cell phones and other new technology; allocation of public and private funds to research, including traditional agricultural research; and a variety of facilitating and regulatory policy issues. Policy research is needed to identify high-priority biological research and development to solve critical problems facing small farmers and poor consumers and more information is needed to help integrate new technology into agroecological approaches. Policy research is also needed to explore how new communications technology, such as satellite-based cell phones and solar panel based generation of energy, can be used to improve rural infrastructure in low-income countries and remote regions. One of the challenging policy research questions is how food security of the poor can benefit from property rights that are moving towards more exclusive patents for biological technology. A related set of research questions is how such new patents will affect diet diversity and biodiversity, how traditional knowledge, plant materials, and experience can be protected against exclusive patenting with, for example, farmers rights legislation, and how this would affect food security.

The rapid expansion of the use of satellites for data collection, including geographic information systems, should be exploited in research on spatial issues related to the production and distribution of agricultural commodities, management of natural resources, and poverty eradication. Research is needed to explore whether precision farming approaches, currently focused on high-income countries, could be adapted and integrated into small-scale farming in low-income countries. Precision farming approaches are becoming more relevant as input subsidies are being eliminated and greater efficiency in input use is being pursued.

Molecular biology based innovations in agriculture and health as well as new technology in information, communication, and energy continue to be focused on markets in high-income countries. Research is needed to identify opportunities for both public and private sector investments with high social returns in low-income countries. Much of the recently developed new technology may be important elements of a strategy to reduce poverty, food insecurity, and unsustainable use of natural resources in developing countries. However, it must be adapted to the conditions within which small farmers and poor consumers operate and supported by appropriate policies and institutions. For that to be successful, new policy research-based knowledge is needed.

Increasing Globalization

Current trends towards increasing globalization, including 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 is likely to continue. The implications for food security, agriculture, and natural resources in developing countries are important. Unfortunately, they are not well understood. Globalization may take different forms. The nature of future globalization rather than globalization itself is the key question. The challenge to food policy research for developing countries is two-fold: first, to improve the understanding of how globalization can be designed and guided to reduce poverty, improve food security of low-income people, and promote sustainable productivity increases in developing country agriculture; and second, to identify the domestic policy changes in developing and developed countries required to avoid negative and maximize positive effects of globalization on developing countries in general and poor people in particular. Alternative approaches to compensate potential losers such as food aid need to be further analyzed. Changes in competitiveness of small-scale agriculture and related policies need further study.

The interaction between developing countries' domestic policies and globalization, including but not limited to trade liberalization and regional integration, is poorly understood for many developing countries, particularly low-income African countries. A low level of price transmission is but one indication that poor countries may fail to capture potential benefits. Yet, this interaction is of critical importance if poor countries are to benefit from globalization. Policy research on this topic is likely to have high future payoff. A combination of lack of such information and a rapidly polarizing debate in various parts of the world may result in policies that prohibit large potential benefits from materializing for low-income countries and poor people. Failure of industrialized nations to open up their markets for goods and services from developing countries, use of a variety of nontariff barriers such as requirements regarding social conditions, and food safety requirements that poor countries cannot meet as well as high tariffs for processed commodities make it difficult for many developing countries to capture benefits from trade liberalization.

Agricultural Input and Output Markets and Rural Infrastructure

Well functioning domestic markets and good infrastructure are a prerequisite for a wide distribution of benefits from globalization and technological change. However, agricultural input and output market reforms in many developing countries are confronted with severe difficulties and the progress towards efficient, effective, and competitive private markets has been slow. There are several reasons for the limited success, including (a) structural weaknesses and institutional deficiencies of domestic markets, (b) strong skepticism and lack of commitment on the part of national policy makers, (c) weaknesses in the design and implementation of reform programs, (d) poor infrastructure, and (e) lack of trust by private traders in the level of the national governments' commitment to market reform. The role of the state during and after the transition to private markets is poorly understood. The challenge facing the countries as they pursue successful market reforms is to find the proper balance between the facilitation of private sector participation with the complementing roles the state needs to play in reducing transaction costs, shaping an appropriate legal environment, promoting effective competition, and easing 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.

Rural Capital and Labor Markets

The pace and pattern of adjustments by rural producers to new opportunities provided by technology and globalization will depend on efficiently functioning rural capital and labor markets. We have seen unprecedented progress in the provision of micro credit to the poor in many developing countries. But farmers, traders, and processors in rural areas are still constrained by formidable problems of access to credit. Rural banks have not emerged at the scale warranted or comparable to the growth of financial institutions in urban sectors. Publicly provided credit mechanisms (for example, agricultural banks, cooperatives, and so on) have performed very poorly and kept many small- and medium-scale producers out of the loop of public credit systems. It is extremely important to find solutions to this problem of rural financial markets. Without development of rural financial markets, rural sectors are likely to fall behind, particularly in the emerging playing fields evolved from globalization. By the same token, because of these emerging forces, efforts to develop rural banks are more likely to be successful now than in the past.

Rural labor markets are becoming more monetized than in the past. Similarly, participation of women in the formal labor markets is increasing. Labor mobility has been increasing because of development of rural infrastructure. These dynamic forces have generated a tremendous impact on employment and wage rates in rural areas, which bear direct consequences for the welfare of the rural poor.

While rural labor markets are crucial for the generation of income for rural landless workers, efficient labor markets are equally crucial for farmers and small enterprises in rural areas, in order to produce goods and services in increasingly commercial environments. Because the forces in rural areas are changing so quickly, the adjustments in labor markets often fail to keep pace and thus are confronted with severe disequilibria. Research on labor market issues and problems, including gender-specific aspects, therefore, has become more critical in the emerging contexts than in the past.

Risk Management and Coping Strategies

Technological change, globalization and increasing climatic fluctuations are introducing new risks and uncertainties in the food and agricultural sector. Economies will be more interconnected, resulting in new risk factors, 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.

Although the trend of global warming is becoming increasingly clear, its effects on food production are still uncertain. Some research suggests that growing conditions will deteriorate in current tropical areas (where many of the developing countries are located) and improve in current temperate areas (where many of the developed countries are located) (Rosenzweig and Parry 1994; Fischer et al. 1996). However, effects on productivity and production will occur over a long period of time and will be very small in any given year. The associated increase in climatic fluctuations is likely to have much greater effects on food security.

Fortunately, new and innovative approaches to risk management in food production, distribution, and consumption, including new instruments for financial risk control, are beginning to surface. New or improved tools such as better climatic forecasting and the availability of data from geographic information systems are also becoming available. Results from recent work on coping strategies, including social or food security safety nets in food consumption, add to the arsenal of approaches for managing risks and consequences for the poor. However, the application of these opportunities is lagging and appropriate private and public institutions have not been developed. The challenge to food policy research is to provide the information needed to design effective insurance schemes and coping strategies and help identify appropriate private and public sector institutions.

Rapid Urbanization

Between 2000 and 2025, the urban population of the developing countries is projected to double from about 2 to about 4 billion (UNCHS 1996), while the rural population is expected to increase by only 2.7 percent. The urban population of Africa will increase by 160 percent while the rural population increases by only 33 percent. With business as usual, there will be a significant shift in poverty, food insecurity, and child malnutrition from rural to urban areas, even though the prevalence of each of these conditions will continue to be higher in rural areas.

While the extent of urban poverty, food insecurity, and malnutrition will depend on a number of factors such as the speed of rural to urban migration and income-earning opportunities in urban areas, government policy and institutional change can have a major influence. Past food policy research in low-income developing countries has appropriately focused on rural areas. Therefore, insufficient information is available to guide government policies and institutional change to prevent rapid deteriorations in the living standards of urban populations as they grow. 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 for an efficient future food supply for the rapidly increasing urban populations, including productivity increases and improved infrastructure, markets, and institutions.

Rural Industrialization

Past research by IFPRI and others have documented the strong linkage effect between productivity increases in small-scale farming and the demand for nonfarm goods and services produced in rural areas (Mellor 1976 and 1986; Hazell and Röell 1983; Hazell and Haggblade 1989; Delgado et al. 1998). The production and distribution of such goods and services can be important sources of income for the rural poor. Labor intensive rural industrialization offers new opportunities for employment and income generation for the rural poor. In low-income developing countries, the processing of agricultural commodities provides an important avenue for expanded rural industrialization, thus adding value to the commodities produced while generating employment for the rural poor.

In developing countries, processing of food, beverages, and tobacco accounts for one-third of the value added from manufacturing activities. However, in many developing countries, particularly the poorer ones in Sub-Saharan Africa, the agricultural processing industry is underdeveloped. Postharvest activities, including processing, storage, and distribution, stimulate backward linkages to farmers through an increase in the demand for agricultural commodities and enhanced off-farm employment. As trade liberalization proceeds, the competitiveness of the domestic food sector becomes an issue of increasing importance and failure to develop an effective and efficient postharvest sector may relegate low-income countries to mere suppliers of cheap agricultural raw materials, thus foregoing opportunities for value added and employment. However, the development of an efficient postharvest sector in rural areas of poor countries is complex and knowledge-intensive. The choice of policies and institutions to facilitate a competitive labor-intensive private sector is critical and more information is needed to support such choices. Policy research is needed to identify the main reasons why the postharvest sector is vibrant in some developing countries and stagnant or virtually nonexistent in others. Opportunities, risks, and constraints must be identified along with appropriate institutions and policies.

Environmental Concerns and Less-favored Areas

Population increases, income growth, and dietary changes will require continued increases in food production. Almost all of the increase will have to come from increasing productivity on existing agricultural land. Past successes in food production in developing countries have resulted from heavy emphasis on irrigated and high potential rainfed lands. Large areas of less-favored lands have been neglected. With rapid population growth, poverty, food insecurity, and natural resource degradation are becoming extremely serious in these areas. If current conditions persist, more than 800 million poor people are expected to live in less-favored areas by 2020 (Hazell and Garrett 1996).

Past development strategies for these areas have often failed, partly due to lack of serious political commitment and insufficient allocation of public resources to generate public goods and facilitate private investment and partly due to lack of knowledge. The challenge to food policy is to help alleviate the knowledge gaps and to draw attention to the risks and opportunities associated with alternative approaches to development of these areas, with emphasis on the impact on poverty, food insecurity, and management of natural resources.

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.

Demand for water will continue to grow rapidly. Projections of water demand to 2020 indicate that global water withdrawals will increase by 35 percent between 1995 and 2020. Developed countries are projected to increase their water withdrawals by 22 percent, more than 80 percent of the increase being for industrial uses. Developing countries are projected to increase their withdrawals by 43 percent over the same period and to experience a significant structural change in their demand for water. The share of domestic and industrial uses in their total water demand is projected to double from 13 percent in 1995 to 27 percent in 2020, reducing the share for agricultural uses.

The costs of developing new sources of water are high and rising, and nontraditional sources such as desalination, reuse of waste water, 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 be met? The rapidly growing domestic and industrial demand for water will have to be met with reduced use in the agriculture sector, which is by far the largest water user, accounting for 72 percent of global water withdrawals and 87 percent of withdrawals in developing countries in 1995 (Rosegrant, Ringler, and Gerpacio 1997). Reforming policies that have contributed to the wasteful use of water offers considerable opportunity to save water, improve efficiency of water use, and boost crop output per unit of water. Required policy reforms include establishing secure water rights of users; decentralizing and privatizing water management functions; and setting incentives for water conservation, including markets in tradable water rights, pricing reform and reduction in subsidies, and effluent or pollution charges (Rosegrant 1997). Research is needed to guide policymaking and institutional changes that will improve water use efficiency and allocation of water among competing uses. Failure to address the gap between tightening supplies and increasing demand for water could significantly slow growth in future food production.

Declining Soil Fertility

Improved soil fertility is a critical component of low-income countries' drive to increase sustainable agricultural production. Past and current failures to replenish soil nutrients in many countries must be rectified through the balanced and efficient use of organic and inorganic plant nutrients and through improved soil management practices and crop varieties.

Although some of the plant nutrient requirements can be met through the application of locally available organic materials, such materials are insufficient to replenish the plant nutrients removed from the soils and thus to further expand crop yields. But 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. However, it is critical that fertilizer use be expanded in countries where soil fertility is low and a large share of the population is food insecure. Fertilizer consumption in these countries is generally low because of high prices, insecure supplies, and the greater risk associated with food production in

marginal areas. For example, on average, fertilizer consumption in Sub-Saharan Africa is about 14 kilograms per hectare compared with about 200 kilograms per hectare in East Asia (World Bank 1997). Expanded use of fertilizers in Sub-Saharan Africa will help alleviate current production shortfalls as well as serious land degradation.

Between 1990 and 2020, global fertilizer demand is forecast to grow by 1.2 percent per year, a significantly lower rate than the 2.8 percent of the 1980s. Average annual growth rates are projected to be about 1.8–2.4 percent in Africa, Asia, and Latin America. These rates will be inadequate to meet nutrient requirements for food production and resource conservation (Bumb and Baanante 1996).

In view of the size and seriousness of the soil fertility problem 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. Such policies should focus on supporting agricultural research to generate appropriate technology; clear long-term property rights to land; access to credit, improved crop varieties, water, and information about effective and efficient use of plant nutrients in various production systems; efficient and effective markets for plant nutrients; and investments in roads and rural transportation systems. The major challenge to food policy research is to generate the information needed to guide policies that will help solve the increasing soil fertility problem in a way compatible with fiscally sound public investments and improved food security.

Inappropriate Property Rights to Land and Other Natural Resources

Property rights are an important determinant of household income and food security, agricultural productivity, and natural resource management. Population growth and increased commercialization in rural areas lead to greater competition and conflict over natural resources with resulting pressure on existing property rights institutions. Traditional communal ownership systems in many areas are evolving towards increasing privatization or open access. Little is known about the effectiveness of different property rights regimes in the face of rapid external changes brought about by increasing population pressures and commercialization. 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, as well as gender-specific aspects. Policy research is also needed on various aspects of land ownership markets and land use regulations, particularly in transition economies.

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 its rapid expansion, particularly among low-income people who cannot afford the new drug treatments, have serious implications for future food security. Having surpassed both measles and malaria, HIV/AIDS has become the second leading cause of child mortality in Sub-Saharan Africa (Brown 1996) and life expectancy in several countries of the region has dropped significantly. While the prevalence is lower in Asia and Latin America, rapid increases in the number of cases in parts of Asia are frightening. In addition to the direct health effects on the individuals, HIV/AIDS affects food security through reduced earning opportunities by unhealthy adults, by the loss of parents and the rapid increase in the number of orphaned children, and by placing increasing demands on scarce public resources for health.

The issues to be addressed by policy research include access by poor rural and urban households to AIDS prevention programs and related health care and the impact of HIV/AIDS on agricultural productivity, income earnings, and child nutrition. Gender-specific aspects should be incorporated in such research. Efforts should be made to identify feasible policy options to mitigate the negative food security and nutrition effects, particularly as they relate to low-income developing countries in general and Sub-Saharan Africa in particular.

Role of the State and of Good Governance

The roles of the state, the market, private voluntary organizations, and the for-profit private sector have changed markedly in countries exposed to globalization, structural adjustment, and related policy and market reforms. However, lack of knowledge about the proper role of each of these agents in the new socioeconomic and political environments within which many developing countries find themselves is a major bottleneck to successful transformation. Failure to arrive at proper roles and

appropriate institutions is a major reason why the reforms have been disappointing in many developing countries.

The role of the public sector appears to be shrinking in many aspects of food security, while civil society and the private sector have taken on increasing importance. While such a shift may be appropriate, recent research and experience clearly show the importance of an effective public sector in many areas related to food security such as agricultural research to develop appropriate technology for small farmers, rural infrastructure, health care, education, development and enforcement of a legal system, and the creation of public goods in general. Market liberalization and globalization require different institutions, rules, and regulations. An effective government is needed to facilitate privatization and guide the transformation of the agricultural sector in a direction beneficial for the poor. Policy research to generate the information required to assure success in these transformations and reforms is urgently needed.

The impact of governance (including democracy, adherence to human rights principles, the rule of law, and empowerment of civil society) on transaction costs and 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. Current efforts in many developing countries to decentralize public sector decisionmaking and resource allocation is hampered by a lack of understanding of how best to implement local government action.

Market liberalization often assumes that the private sector is capable and willing to take over the roles traditionally managed by the government. Where that assumption has been taken too far, the elimination of inefficient government agencies and institutions have not resulted in appropriate private sector agents and the poor have been left worse off than before. The challenge to food policy research is to generate the information needed to design and implement appropriate new institutions and policies where needed to complement the new role of the private sector in agricultural input and output markets.

The participation of the private voluntary organizations (PVOs) in development, including their role in food security and management of natural resources, has expanded dramatically during the last 10 years. Research is needed to assess that experience and impact, help identify the proper future role of PVOs in eradicating poverty, food insecurity, and unsustainable use of natural resources, and determine how the public sector can best support the efforts of the PVOs.

RESEARCH IMPLEMENTATION

Food policy decisions are mostly national. Thus, most of the food policy research should be done at the national level. The current capacity for food policy is low in most developing countries and the demand for such research among decision-makers as expressed in government financial support is very limited. Policy research is undertaken in a variety of national institutions including government ministries, universities, and public and private research agencies. It is important that the relevant ministries, such as the ministries of agriculture and planning, have policy analysis and policy advisory capacity. However, the policy research may be less likely to be biased or exposed to political pressure if undertaken outside the government ministries.

While the emphasis is on biological research, national agricultural research systems (NARS) in several developing countries undertake some policy research and many are stressing the needs to strengthen their policy research in the future. Since interaction between policy researchers and biological researchers is important, it would be logical to conclude that both kinds of researchers should be in the same institutions. Whether that will result in good policy research depends on a number of factors such as the ability of the NARS to attract qualified food policy researchers, the creation of a critical mass of such researchers, and the allocation of sufficient resources to permit primary data collection and analysis. The impact of good policy research depends on the ability of the NARS to get the attention of the policy

makers and to influence their decisions. In all of these areas, NARS face serious handicaps. Highly qualified policy researchers may not perceive NARS to be their best professional opportunity, preferring instead universities or independent economic research agencies. Few NARS are likely to allocate sufficient resources to create a critical mass of high quality policy researchers and to allow the necessary primary data collection and analysis. After all, few if any NARS consider policy research to be at the core of agricultural research. Even when good policy research is produced by the NARS, they may have serious difficulties getting the resulting knowledge incorporated into policy decision-making, particularly in ministries such as finance, planning, and health where the NARS may not be known for their advise on policy matters.

All of these challenges can be overcome by NARS determined to have a strong policy research capacity. Alternatively, NARS may form partnerships with other institutions such as universities, government ministries, and public and private policy research agencies that are more likely to be successful in policy research and impact. Such partnerships could help set priorities for policy research that reflect the needs perceived by the NARS as well as the decision-makers, while leaving the actual policy research in institutions where it is more likely to be successful, such as universities and independent policy research agencies. National partnerships of this nature have been developed in 14 African countries under the auspices of IFPRI's 2020 Vision Initiative. A small number, usually 5-10, policy researchers, advisors, and decision-makers in each country form a group which, on the basis of wide consultations in the country and with colleagues in the region, have established priorities for food policy research in the country. The execution of the research is done by group members and possibly others with methodological, logistical, and financial support from IFPRI.

GFAR may play an important role in supporting such national policy research through the facilitation of interaction and information sharing. GFAR may also be an effective organization to promote information about the importance of agriculture in low-income developing countries and foster policy dialogs within and among countries and between the private and the public sector on critical issues such as modern biotechnology and globalization. IFPRI and other CGIAR centers may provide support on analytical methodology, capacity strengthening, information sharing, logistics, and research collaboration. IFPRI may also assist through research of regional and international policy issues and through cross-country syntheses on high priority policy issues such as those mentioned above.

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