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Agricultural Growth Is the Key to Poverty Alleviation in Low-Income Developing Countries

by Per Pinstrup-Andersen and Rajul Pandya-Lorch

The extent and depth of poverty in the developing world is a disgrace. Over 1.1 billion people--30 percent of the population--live in absolute poverty, with only a dollar a day or less per person to meet food, shelter, and other needs. Not surprisingly, hunger, malnutrition, and associated diseases are widespread: more than 700 million people do not have access to sufficient food to lead healthy, productive lives; millions more live on the edge of hunger; and more than 180 million preschool children are significantly underweight. Every second person in South Asia and Sub-Saharan Africa is absolutely poor. Unless concerted action is taken now, poverty is not expected to diminish much in the near future. South Asia will continue to be home to half the developing world's poor, and Sub-Saharan Africa, where the number of poor is projected to increase 40 percent between 1990 and 2000, will emerge as an increasingly important locus of poverty.

Poverty is a rural phenomenon in most of the developing world, especially the low-income developing countries. The rural poor make up more than 75 percent of the poor in many Sub-Saharan African and Asian countries. Latin America's high urbanization rates have led to a higher prevalence of urban poverty, but even in that region the majority of the poor are rural.

Agriculture Is Key to Poverty Alleviation

Most of the world's poor are rural-based and, even when they are not engaged in their own agricultural activities, they rely on nonfarm employment and income that depend in one way or another on agriculture. Moreover, agricultural growth is a catalyst for broad-based economic growth and development in most low-income countries: agriculture's linkages to the nonfarm economy generate considerable employment, income, and growth in the rest of the economy. Very few countries have experienced rapid economic growth without agricultural growth either preceding or accompanying it. Economic growth is strongly linked to poverty reduction. Diversification out of agriculture will occur in the long term, but in the short term many countries lack alternatives.

Agricultural growth and development must be vigorously pursued in low-income developing countries for at least four reasons: (1) to alleviate poverty through employment creation and income generation in rural areas; (2) to meet growing food needs driven by rapid population growth and urbanization; (3) to stimulate

overall economic growth, given that agriculture is the most viable lead sector for growth and development in many low-income developing countries; and (4) to conserve natural resources. Poverty is the most serious threat to the environment in developing countries: lacking means to appropriately intensify agriculture, the poor are often forced to overuse or misuse the natural resource base to meet basic needs.

National and international investments in agriculture have declined since the mid-1980s. In many countries, agriculture has been taxed explicitly and implicitly. The downward trend in support for developing-country agriculture must be reversed, not only to assure future food supplies and to protect natural resources, but also to promote general economic growth and poverty alleviation. Accelerated public investments are needed to facilitate agricultural and rural growth through

- Yield-increasing crop varieties, including improved crop varieties and hybrids that are more drought-tolerant and pest-resistant, and improved live¡stock;

- Yield-increasing and environmentally-friendly production technology such as small-scale irrigation and irrigation management systems and techniques such as integrated pest management;

- Reliable, timely, and reasonably priced access to appropriate inputs such as tools, fertilizer, and, when needed, pesticides, and the credit often needed to purchase them;

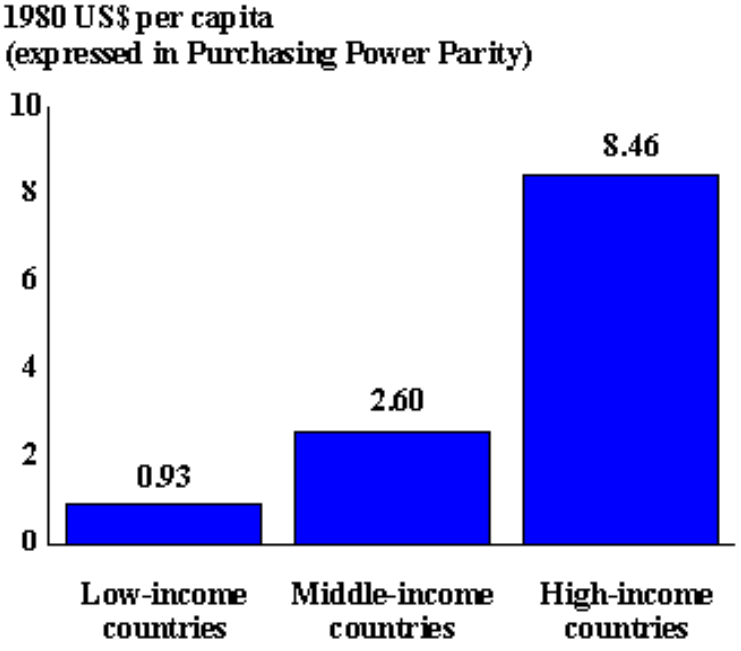
- Strong extension services and technical assistance to communicate timely information and developments in technology and sustainable resource management to farmers and to relay farmer concerns to researchers;

- Improved rural infrastructure and effective markets; and

- Primary education, health care, and good nutrition for all.

These investments need to be supported by an enabling policy environment. This includes trade, macro, and sectoral policies that do not discriminate against agriculture, and policies that provide appropriate incentives for the sustainable management of natural resources.

Figure 1--Agricultural research expenditures, 1981-85



Source: Pardey, P., J. Roseboom, and J.R. Anderson, eds. 1991. *Agricultural research policy: International quantitative perspectives*. Cambridge: Cambridge University Press

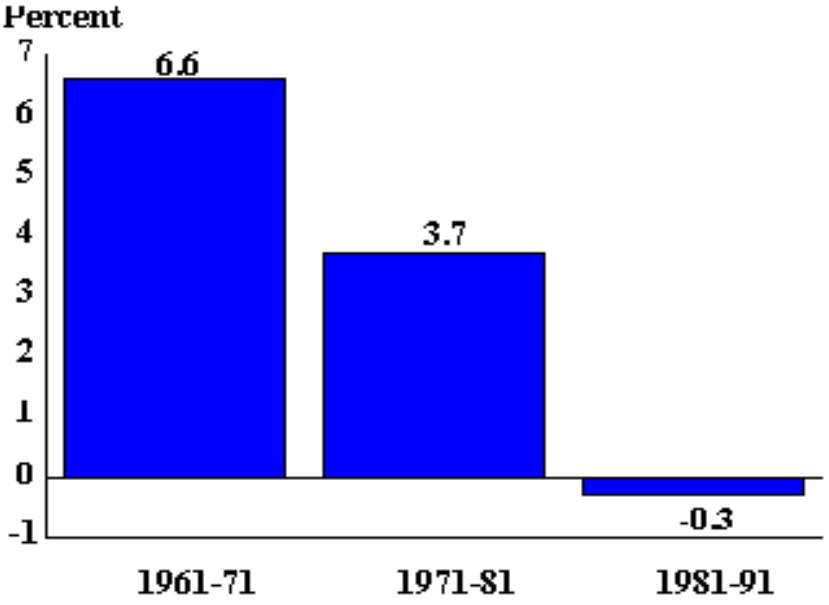
Investments in Research and Technology Are Crucial

Agricultural research and technological improvements are crucial to increase agricultural productivity and returns to farmers and farm labor, thereby reducing poverty and meeting future food needs at reasonable prices without irreversible degradation of the natural resource base. Accelerated investment in agricultural research is particularly urgent for low-income developing countries, partly because these countries will not achieve reasonable economic growth and poverty alleviation without productivity increases in agriculture, and partly because comparatively little research is currently undertaken in these countries. Many poor countries, which depend the most on pro-ductivity increases in agriculture, grossly underinvest in agricultural research (Figure1). Per capita agricultural research expenditures in low-income countries are one-tenth those in high-income countries, even though agriculture accounts for much larger shares of average incomes. Expenditures in public-sector agricultural research in low-income countries are still less than 0.5 percent of the agricultural gross domestic product, compared with about 2.0 percent in high-income countries, a share that has doubled since the early 1960s. Sub-Saharan Africa, which desperately needs productivity increases in agriculture, has only 42 agricultural researchers per million economically active

persons in agriculture compared with 2,458 in industrialized countries. Figureá2 shows that the annual growth of African agricultural research expenditures has declined since the 1960s. Sub-Saharan Africa is also missing out on biotechnological research, which is concentrated in industrial countries and a few large developing countries such as Brazil. By failing to capitalize on the new opportunities biotechnology offers, Sub-Saharan Africa may lose export markets to competitors and synthetic substitutes.

A large share of the poor reside in areas with high risks of environmental degradation. The low priority given to research to develop appropriate technology for these areas in the past is a major reason for the current rapid degradation of natural resources and high levels of poverty. In addition to assuring sufficient research investment in the high-potential areas, much more research must be directed to the development of appropriate technology for marginal areas. Outmigration is not a feasible solution for these areas in the foreseeable future simply because of the large numbers of poor people who reside there and the lack of opportunities elsewhere.

Figure 2--Annual growth rate of expenditures in African national agricultural research systems



Note: Includes 16 countries.
Source: Pardey, P., J. Roseboom, and N. Beintema. 1995. *Agricultural research in Africa: Three decades of development*. Briefing Paper No. 19. The Hague, Netherlands: International Service for National Agricultural Research.

While the private sector is expected to play an increasing role in research and technology development for developing-country agriculture, much of the research needed to reduce poverty is of a public goods nature--the benefits are not easily captured by individual farmers or firms but extend to society as a whole--and will not be undertaken by the private sector. Fortunately, extremely high social rates of returns of past and current agricultural research justify public investment. The major share of such investments should occur in the developing countries' own research institutions. However, to be fully effective, those institutions must be supported by international research. The centers under the auspices of the Consultative Group on International Agricultural Research (CGIAR) play an essential role in undertaking research of a public goods nature with large international benefits. Such research is of critical importance to developing countries and must be accelerated if poverty is to be significantly reduced.

Research and technology alone will not drive agricultural growth. The interaction between technology and policy is critical. The full and beneficial effects of agricultural research and technological change will materialize only if government policies are appropriate. Distortions in input and output markets, asset ownership, and other institutional and market distortions adverse to the poor must be minimized or removed. Access by the poor to productive resources such as land and capital needs to be enhanced. Human resources must be improved through expanded investments in education, health care, nutrition, and sanitary environments. Rural infrastructure and institutions must be strengthened. The policy environment must be conducive to and supportive of poverty alleviation and sustainable management of natural resources.

Agriculture must be in the forefront of the national and international agenda to eradicate poverty in low-income developing countries. Failure to significantly expand agricultural research in and for developing countries and failure to invest in agricultural development will make poverty eradication an elusive goal. Lack of foresight today comes with a high price tag for the future. As usual, the weak and powerless will pay the largest share of the price. We must all share the blame for inaction or inappropriate action.

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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 develop a shared vision and consensus for action on how to meet future world food needs while reducing poverty and protecting the environment. Through the 2020 Vision initiative, IFPRI is bringing together divergent schools of thought on these issues, generating research, and identifying recommendations. The *2020 Briefs* present information on various aspects of the issues.