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COMMENTARY

A Green Revolution for Africa

By NORMAN E. BORLAUG
October 26, 2007; Page A17

The so-called Green Revolution of Asia, which began in the 1960s and continued through the 1980s, spurred the greatest expansion of food production in world history. Global wheat and rice production doubled, and continued to grow. The cost of cereal grains declined by 30%. The proportion of the people suffering from hunger was halved. Agriculture was at the center of the global development agenda. Research and development, political courage, effective policies and good governance were the driving forces.

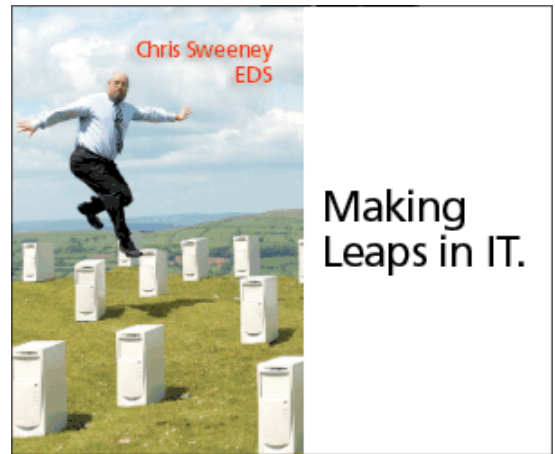
The World Bank, in its newly published "World Development Report: Agriculture for Development," takes stock of the sector and its potential for future sustainable development. This World Development Report comes 25 years after the last issue that featured agriculture and rural development. What has happened in the interim? The report card is not all good, particularly for Africa.

For more than 20 years I have worked with former President Jimmy Carter and the Nippon Foundation of Japan to help transform smallholder agricultural production in sub-Saharan Africa, the region where agricultural development has been the most anemic. The reasons for this poor performance are many. A comparison with the Asian Green Revolution is instructive.

Most foods in Africa are produced under rain-fed, often drought-prone conditions, while as much as two-thirds of Asia's food supply comes from its irrigated lands. African farmlands are generally isolated from motorized transport systems, while Asia had relatively good rail and road systems. Africa has few price-support systems for production inputs or farm output, while

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in Asia strong state intervention was present. Food cropping patterns and agro-ecologies are considerably more diverse in Africa than Asia. Finally, Africa's political commitment to agriculture and rural development has been much weaker than what existed in Asia, when measured in terms of the share of public spending for the sector.

Environmental degradation in African agriculture has also been much greater. Increasing population pressures have overwhelmed traditional systems of shifting cultivation to restore or recycle plant nutrients. This has resulted in a progressive -- and now often dramatic -- degradation of the soil resource base, while fertilizer use has hardly increased at all, and is the lowest in the world. Erroneous views about what constitutes sustainable agriculture have polarized discussions about the need for organic and chemical fertilizers, and hindered African governments in setting the right priorities for soil fertility management.

A broader and more integrated perspective is needed for African agriculture, one that focuses on the entire farming enterprise -- food and cash crops, livestock and value-added processing. Even so, the World Development Report underscores the importance of transforming staple-food production. Because such crops are the most widely grown, productivity improvements have huge payoffs, both to producers and consumers. Much greater attention must also be given to post-production market linkages -- especially to grain markets and agro-industrial food processing that offer off-farm employment opportunities.

Substantially greater investments in infrastructure -- roads, electrical power, water resources -- underlie all other efforts in rural and agricultural development. Unless infrastructure is improved, there is little hope for real progress in reversing the alarming food insecurity trends or in making agriculture an engine of economic growth.

One World Bank statistic is especially alarming. In Asia, agriculture R&D investment has increased three-fold over the past 20 years, but in Africa, only by 20% (it has actually declined in about half the countries). Building research talent is one of Africa's most urgent imperatives, and even with adequate investments, this will take time and new vision.

R&D is especially needed to address Africa's special production circumstances. At least half of the continent's poor and hungry people are smallholder farmers in marginal lands, where agriculture is more costly and risky due to agro-climatic stresses and/or remoteness from markets. New science and technology, including the tools of biotechnology, will be needed to develop crops better able to withstand climatic stresses such as drought, heat and flooding. Such research will also contribute to helping the world prepare for future production effects anticipated from global warming.

The World Development Report is a milestone contribution to placing agriculture once again at the center of the development agenda. Achieving this priority shift will be fundamental to poverty reduction and sustainable development.

Mr. Borlaug is an agricultural scientist whose wheat research helped revolutionize food production in Latin America and Asia, sparking what came to be known as the Green Revolution. He was awarded the Nobel Peace Prize in 1970 and the Congressional Gold Medal in 2006.

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