CALLING FOR A NEW ‘GREEN REVOLUTION’

Book urges harnessing scientific advances to fight hunger and poverty

WASHINGTON, October 25, 1999— As the twenty-first century dawns, the world faces the prospect of a new and complex food crisis that will require better ways of ensuring that the hungry and the malnourished will be able to meet their food needs.

"If the world cannot make progress against hunger and poverty, by year 2025, there could be 4 billion people living on less than US$2 per day and more than 2 billion living in extreme poverty," says James D. Wolfensohn, President of the World Bank, a founder and cosponsor of the Consultative Group on International Agricultural Research (CGIAR).

To tackle this enormous challenge, the international community must launch a new "Green Revolution", more powerful and encompassing than the one that thirty years ago that doubled production of key crops such as rice and wheat. The power of science and information technology must be harnessed for the benefit of the world’s poor, says a new book released today by the CGIAR System Review Secretariat.

“New scientific developments have the potential to radically reshape the world’s agriculture and food systems,” says Maurice Strong, Chairman of the CGIAR System Review and co-author of the Book, *Food in the 21st Century: From Science to Sustainable Agriculture*. “We need to recommit to science and research to ensure that the poor are not excluded, and that biodiversity and the environment are not undermined.”

Putting Science to Work for the Poor

Already today, there are more than 840 million people -- a number exceeding the combined population of Europe, US, Canada and Japan -- who do not have enough to eat. Every minute, some 30 people die of hunger in the developing world and half of these are infants and children.

“Food production will have to increase by more than 50 percent to feed an additional two billion people by 2025,” says Mahendra Shah, co-author of the book, and Executive Secretary of the CGIAR System Review. “But numbers don’t tell the full story. The challenge is far more intricate than simply producing more food. Conditions are very different than they were on the eve of the Green Revolution. To prevent a crisis, the world community must
simultaneously confront the issues of poverty, food insecurity, environmental degradation, and erosion of genetic resources.”

The book highlights three powerful scientific developments that can help food production keep pace sustainably with a rapidly growing population.

- **Using Biotechnology Responsibly** -- Biotechnology can shorten the time and cut the costs required to develop new crop varieties. Biotechnology tools can introduce genes that counter soil toxicity, resist insect pests, and increase nutrient content in crops. Still, the questions of biosafety and the ethics of manipulating genetic material, need to be resolved before the potential of biotechnology and genetic engineering can be realized.

- **Managing Natural Resources Better** – New scientific tools will need to be combined with knowledge about natural resources management in order to avoid increasing water shortages, loss of arable lands, deforestation, loss of biodiversity, and depleted fisheries.

- **Harnessing the Information Revolution** – The phenomenal growth of communication networks in the past few years can be used to create a more interactive global agricultural research system. In the past, indigenous knowledge about local varieties, farming techniques, and other local technologies tested through the generations rarely made its way to scientists who could incorporate it in their work. Now, indigenous knowledge, combined with new and classical scientific knowledge is available worldwide.

**How Can Science Help?**

New scientific advances have the potential to offer sizeable benefits in agricultural production, food quality, nutrition and health but these have to based on sound scientific evidence and a system of checks and balances to gain the confidence of producers and consumers alike, says the book.

Still, some developing world farmers are already sharing in the benefits of genetic engineering and appear to have profited. Examples include:

- The insertion of a gene that produces beta carotene, a precursor to vitamin A, into the canola plant, has provided a biotechnology success story. Vitamin A deficiencies, common in the developing world, can cause irreversible eye damage. Since many farm families grow canola to produce cooking oil, this genetically altered plant offers a solution to a serious health problem.

- Gains are being made with genes that confer resistance to insects or diseases, or that counter environmental stress conditions. In India, scientists have added two genes to rice to help plants survive when submerged for long periods, a problem common in Asia.

- In China, small cotton growers field tested seed for bollworm-resistant cotton. They paid a premium for the seed, but achieved a 90 percent germination rate, not the usual 40 percent. They saved capital because they did not need to spray and did not have to pay for workers to pick off the worms by hand. Today over 1.3 million small farmers have switched to the new seed.
New Partnerships for a New Revolution

The book also emphasizes that stronger, more effective partnerships are the key to making science work for the poor.

Thus far, agricultural biotechnology companies have shown little interest and commitment to plants, pests, and diseases common to tropical zones. Instead, their products have been more suited to large-scale, commercial farming in the developed countries than the complex systems typical of farmers in developing countries. Governments, meanwhile, hold the prime responsibility for building strong national agricultural systems as part of their overall development strategies.

"Governments, civil society, and the private sector around the world must provide the means for mobilizing science and research for sustainable food and agriculture," says co-author Shah. "The developed countries in the world allocate more than 1,000 times more money in subsidies for their agriculture than they do to support international agricultural research for the food commodities of the poor."

The CGIAR, with its worldwide network of international agricultural research centers, has a critical role to play in applying the new scientific advances for the basic needs of humanity. The centers represent the only authoritative international scientific organizations capable of harnessing that the tremendous capacities of science to address the problems of the poor in the developing world.

"The CGIAR system has the combination of resources to meet the many complex aspects of the looming global crisis in food and agriculture," says co-author Strong. "CGIAR’s record of accomplishment and willingness to adapt itself to face new challenges began with the Green Revolution and has continued ever since."

The CGIAR Systems Review was carried out in 1998 by an independent panel that examined the directions and priorities of the CGIAR System. The CGIAR, established in 1971, is an association of 58 public and private sector members, supporting a network of 16 international agricultural research centers. Its mission is to contribute to food security and poverty eradication in developing countries through research, partnership, capacity building, and policy support promoting sustainable agricultural development based on the environmentally sound management of natural resources.

Cosponsors of the CGIAR are the World Bank, the Food and Agricultural Organization of the United Nations (FAO), the UN Development Program (UNDP), and the UN Environment Program (UNEP).

To read the online version of the full book, visit Food in the 21st Century: From Science to Sustainable Agriculture, visit http://www.cgiar.org.