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# CGIAR at a Glance: A Strategic Alliance

**The Consultative Group on International Agricultural Research (CGIAR)** is a strategic alliance of countries, international and regional organizations, and private foundations supporting 15 international agricultural research Centers that work with national agricultural research systems, civil society organizations and the private sector to build the scientific foundations of equitable and sustainable economic growth in the developing world. The Alliance mobilizes agricultural science to reduce poverty, foster human well-being, promote agricultural growth and protect the environment. The CGIAR generates global public goods that are available to all. In 2005, CGIAR Members contributed US\$450 million — the single largest investment in generating public goods for the benefit of poor agricultural communities worldwide.

The CGIAR has five areas of focus:

- **Sustainable production** of crops, livestock, fisheries, forests and natural resources;
- **Enhancement of national agricultural research systems** through joint research, policy support, training and knowledge-sharing;
- **Germplasm improvement** for priority crops, livestock, trees and fish;
- **Germplasm collection, characterization and conservation**, as the genetic resources that the CGIAR holds in public trust, and makes available to all, include some of the world's largest gene banks;
- **Policy research** on matters that have a major impact on agriculture, food, health, disseminating new technologies, and managing and conserving natural resources.

**A global Alliance for agricultural research builds the scientific foundations of equitable and sustainable economic growth in the developing world**

# Message from the Chair and Director — Science-Based Solutions: Tools of Development

## The power and reach of science surround us.

For instance, science made space exploration possible, revolutionized the technology of communication, and provided poor farmers with the means to cultivate robust plants, thereby increasing their harvests and their incomes.

Although the application of science and technology affects many aspects of life in today's world, consumers of science-based technology rarely pause to think about the effort that has gone into developing and diffusing the products of scientific inquiry. This effort has been substantial, and it continues. We believe it appropriate, therefore, to celebrate the fact that some of the most important human achievements of the past century owe their creation and continued effectiveness to science: cheaper and more abundant food, improved health and nutrition, protection of the environment, better hygiene and sanitation, wider availability of running water, and diverse forms of transport, to name just a few. Science conditions our worldview and offers us options for the future. Regrettably, the potential of science has also been exploited to create technologies of destruction.

The Consultative Group on International Agricultural Research (CGIAR) System is sharply focused on creative *agricultural* science whose impact on life is solely beneficial. The defining commitment of the CGIAR System is to harness the power of science and use it to help solve problems associated, in their many dimensions, with poverty, food security, environmental protection and economic growth.



Ian Johnson and Francisco Reifschneider with potato farmer in Shangsuan village, Jinning County, Yunnan Province, China

The founders of the CGIAR had a vision of agricultural research of the highest quality, solving problems that stood in the way of increased food crop productivity in developing countries. They were convinced that, when problems were solved in one country or group of countries where research was conducted, the solutions could be moved across national borders and adapted to local agro-ecological conditions in more and more countries and regions. In this way, a single science-based solution would enhance the well-being of millions.

That vision has been validated many times over in research laboratories, farmers' fields and homes. Productivity increases made possible by science-based technologies and appropriate policies have helped in the battle

against poverty and hunger. Science has also made possible better and more sustainable management of natural resources. As a result, today's farmers are able to produce enough food from the same land area to feed twice the number of people that would have been fed two decades ago.

We cannot, however, be satisfied with celebrating past successes alone, because challenges remain — both known and unknown.

With challenges come opportunities. The scientific mind-set encourages Center scientists to be alert to and recognize even the most minute evidence that presages the appearance of a hitherto unknown challenge, and world-class science enables them to grasp the opportunities for overcoming it. This process requires Center scientists to nurture their own capacity to the fullest and to work in collaboration with a variety of partners.

The theme of the CGIAR annual report for 2005 — "science-based solutions: the science behind growth and development" — illustrates the CGIAR System's commitment to following this course.

The many components of the CGIAR System, and their contributions to the System's effectiveness, are presented in the reports and assessments that follow this introductory message. They touch on much of what is required to maintain the continued emphasis of the CGIAR System on science-based solutions as tools of development.

Reports from CGIAR-supported Centers and Challenge Programs highlight specific outcomes of scientific research that were noted and implemented in 2005 — although, of course, the research would have been carried out over several preceding years — and fully realizing the impact of these outcomes may take as many years into the future.

Outcomes of scientific efforts such as these, and many others, have enabled the human family to achieve phenomenal progress in the past century. We know, however, that the fruits of progress are unevenly spread. Poverty and destitution coexist with prosperity. Despite the achievements of agricultural research that have all but eliminated widespread famine, hunger is still the lot of too many people. Continued population growth will aggravate hunger unless science-based solutions intervene. Adequate policies will be part of these solutions.

The world will be densely populated by 2050, with current migration trends putting more than 65 percent of people in urban areas. The demand for food could double, and demand will grow more complex as incomes rise and consumers become prepared to spend more on better, high-value foods. These trends will intensify pressure on natural resources that are already under stress.

These challenges are known. In addition, many issues on the horizon require continued assessment of their specifics. They include the threat of an avian flu pandemic, which has already

cost developing countries some US\$10 billion in losses from poultry culling to slow the spread of the disease; the potential threat to wheat from the emergence of a new, virulent race of stem rust, Ug99; and rising oil prices' continued serious impact on the economies of developing countries.

In approaching such major challenges, the perspective of the CGIAR System has to be unambiguously pro-poor by first determining the likely impact of each challenge on the poor and then developing policies and science-based technologies to overcome it. Stem rust is already the focus of a special program led by two Centers, the International Maize and Wheat Improvement Center and the



Ian Johnson and Mr. Yang Wuyun, Wenjiang Experimental Station, Sichuan Province, China

International Center for Research in the Dry Areas, as described in this report by an award-winning Center scientist. Regarding rising oil prices, the search for renewable sources of energy needs to be re-energized.

The CGIAR System can continue to harness the power of science — but only if we constantly

Because the CGIAR System exists to fulfill the needs of the poor and disadvantaged, it has provided leadership in creating scientific partnerships, developing appropriate institutions and supporting policies that will make this possible. The CGIAR System has acted to synthesize knowledge and make it available to national agricultural research systems (NARS)

other resources of the private sector. Reconciling public goods development with intellectual property protection (IPR) requires goodwill and the negotiation and establishment of new mechanisms. In this connection, views and experience need to be exchanged on establishing a hybrid IPR regime that is fair to developing countries and conducive to development. The CGIAR will be breaking new ground by entering into this difficult but necessary discussion.

**Our founders shared the conviction that the results of scientific breakthroughs, transferred across borders and adapted to local agro-ecological conditions in developing countries, could generate a shift from handouts to hope**

renew our practices and institutions so that they are fully suited to meet the challenges of both the present and the future. The current growth of scientific knowledge takes place at great speed. Among current trends, the use of nanotechnology is spreading and may help poor farmers if it is developed to meet their needs, with appropriate safeguards against possible risks. Several studies suggest that nanotechnology could be used to enhance agricultural productivity, improve pest detection and control, and help in the development of food processing. Such exciting possibilities will pass poor farmers by unless certain conditions are met. The technology must be explicitly directed to create science-based solutions as global public goods for specific clients. Networks of distribution must give small-holders access to the solutions, and product promotion must make the existence of new science-based technologies known to the people who can benefit from them.

through information technology-based knowledge networks. These are critically important areas in which the CGIAR has to do more.

The CGIAR System has also carried out important organizational innovations such as introducing Challenge Programs, developing regional medium-term plans, and continuing efforts to strengthen and expand our partnerships with civil society organizations, NARS and the private sector. Much of what we will be called on to achieve in the years ahead will require increased recourse to partnerships. The value of partnerships is clearly stated in a contribution to this annual report by Nigeria's minister of agriculture and rural development. New scientific tools and new institutional tools will be needed to enhance the power and reach of partnerships.

Also necessary will be developing innovative models for drawing on the knowledge and

Among other complications that have to be resolved are unfair trade practices, as pointed out in this annual report by the Director General of the International Food Policy Research Institute, and the skewed nature of investment in science, which is a focus of an analysis by the World Bank's chief economist.

Science is never static. Nor are scientists. So we must move into the future with a sense of assurance based on past achievements, and with confidence in our ability to ensure that new science, renewed institutions and strengthened partnerships will continue to create effective tools of development.

Ian Johnson  
*Chair, CGIAR*

Francisco J.B. Reifschneider  
*Director, CGIAR*

# Science Council: Now to Apply the Priorities

**The Science Council of the Consultative Group on International Agricultural Research (CGIAR) was in its second year of operation in 2005.** Its work has continued in many areas, including developing new medium-term plan guidelines, piloting the Performance Measurement System, undertaking external reviews of three Centers, and commissioning impact assessment studies on, for example, natural resource management research and the Alternatives to Slash-and-Burn Systemwide Program. A key achievement this year was defining and approving new CGIAR System Priorities for research.

A key attribute of the new System Priorities is their credibility arising from the multipronged approach through which they were established. For the Science Council, it was fundamental that the process be both analytical and broadly consultative with stakeholders, including NGOs, donors and scientists, both within the CGIAR System and in other research institutions, including national agricultural research systems and advanced research centers. The new priorities had to result from a conscientious analysis of emerging challenges and future global food scenarios, and from the potential to link different areas of research to

was to refocus research efforts on producing international public goods — an area in which the CGIAR System has a clear comparative advantage. The expected products of research are therefore goods with broader-than-local impact, a reasonably high probability of success, and little likelihood of being supplied by others, such as the private sector, because no market mechanisms exist to control their use.

The new priorities reflect the CGIAR's renewed focus on agricultural research for achieving the Millennium Development Goals, especially those addressing poverty, equity, the environment and institutions. A new focus on the CGIAR's role in research regarding long-term issues applies in five key areas: biodiversity, genetic improvement, wealth creation, sustainable resource management, and policies and institutions. Genetic conservation and enhancement will include a new emphasis on livestock and fish genetic resources and on applying modern molecular science to improve staple crops' drought tolerance and nutrition. The overall focus of System Priorities on poverty alleviation aims to allow farmers to earn higher incomes by adopting improved agricultural technologies and approaches toward natural resource management. A particular emphasis of the new priorities is on income generation by the poor, including research on high-value species — a direct response to the concern that the poor are not making the most of agricultural diversification strategies to produce high-value commodities and products.

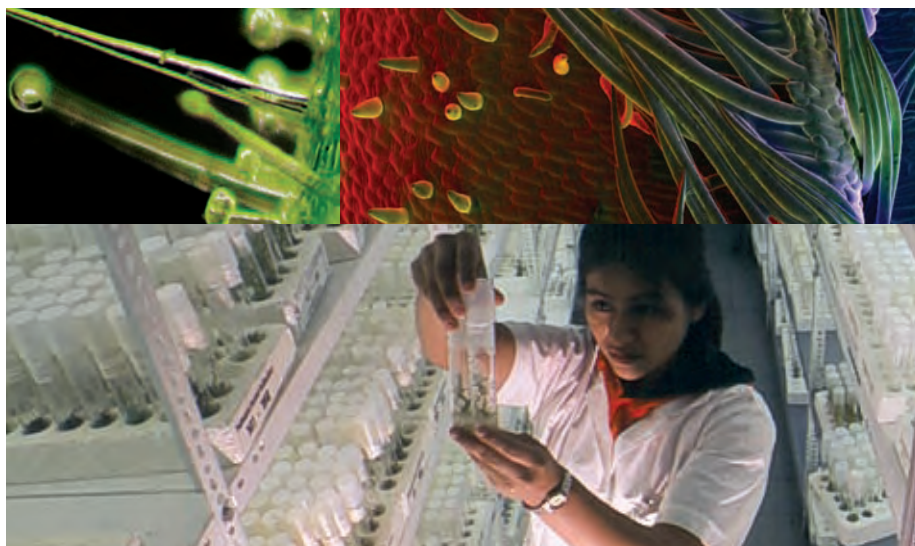
## **Having defined research priorities with thorough analysis and consultation, and having secured their approval, the System must now implement them**

The primary aim of the new priorities is to help develop a more cohesive, focused and high-quality research program in the CGIAR, and to ensure that the System produces science that alleviates poverty, hunger and malnutrition while protecting the environment. We also believe that, with the new priorities in place, CGIAR research will have a greater impact by avoiding dispersion of research effort, better mobilizing research capacity across the System, promoting coordination and cooperation, and enhancing accountability. The new priorities will also give direction to CGIAR donors and other institutions that invest in ways to alleviate worldwide poverty.

poverty alleviation, while also taking into account the current research portfolios of the CGIAR and others. Opinions were gathered from analyses of position papers, expert consultations, regional and global panels, and an electronic forum with over 800 participants.

The criteria used to define the new priorities are another key attribute. Fundamental considerations in deciding where CGIAR research efforts should focus were the expected impact of research products on poverty alleviation, food security and nutrition, and sustainably managing natural resources. A major tenet of developing new System priorities for research





Research in this area will involve a new collaborative approach with global sources of expertise in fruits and vegetables. Research on how the poor can benefit from greater participation in markets will now address concerns about quality and food safety, as well as non-tariff trade barriers faced by developing countries. The new priorities also aim to mainstream landscape-level approaches to managing agricultural and natural resources and to combating farmland degradation.

Now that we have agreed on new priorities for the CGIAR, we can focus our efforts on implementation. Implementing the priorities will require combining a core set of CGIAR Center research programs and strengthening other mechanisms such as Systemwide and Challenge programs. It will also require placing the CGIAR more centrally in the research-development continuum. Centers need to concentrate on research for development, moving away from development activities per se, such as extension.

This shift toward research for development means that Centers must ensure that they have the right partners to mobilize science at both ends of the continuum. They require further engagement with advanced research centers for upstream, basic science. Research planning will need to define how best to draw on legal and policy advice in complex areas, such as intellectual property rights, to gain access to the best expertise available. National and regional agricultural research systems will still constitute key links for implementing the new priorities and should be further encouraged to take over research nationally, where possible, to allow Centers to concentrate on creating international public goods. Effective and mutually beneficial partnerships with the private sector and civil society organizations, including NGOs, will continue to be critical to scaling up the effects of CGIAR research and translating new priority research into impact.

Key challenges will be forging strong partnerships with low transaction costs, building on

existing structures, and promoting interaction among researchers. Centers should strive to operate with an “innovation systems” approach in which they facilitate delivery through networks. Rather than give in to the temptation to set up delivery systems for particular communities or countries, Centers need to foster the development of delivery systems in partner countries. This will inevitably involve Centers advocating to national governments and development assistance agencies the development of such delivery systems, either through publicly funded national institutions or such international agencies as the Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, World Bank, regional banks and NGOs, or through private consultancies.

We know that agriculture is the driving force in low-income countries for broad-based economic growth and poverty alleviation. We also know that agricultural research is key to getting agriculture moving and contributing to the challenges that continue to face developing countries. The new System Priorities should reorient CGIAR efforts to apply the right science in new ways that support national efforts in developing countries to reduce hunger and poverty.

Per Pinstrup-Andersen  
*Chair, Science Council*

# Center Alliance: Laying Solid Foundations

**As chairs of the Alliance Board and the Alliance Executive,<sup>1</sup> we are pleased to report on the important steps taken in 2005 on behalf of the Alliance of Future Harvest Centers of the Consultative Group on International Agricultural Research (CGIAR).**

The Alliance has made significant progress since it was first endorsed at the CGIAR Executive Council meeting in September 2004 and formally established during the 2004 Annual General Meeting (AGM04) of the CGIAR.

## **The Alliance of Future Harvest Centers drafts a set of guiding principles and looks forward to occupying a new home in Rome**

Some highlights of 2005 include the following:

■ A set of guiding principles was drafted and agreed on, after which the Alliance leadership appointed a team to draft the Alliance Principles and Procedures (AP&P). This document will serve as a road map for decision making, collective action and convergence among CGIAR Centers. With assistance from the CGIAR Secretariat and the legal team of the World Bank, we were able to approve the document during pre-AGM05 meetings in Marrakech, Morocco. Once the document is endorsed by Center boards, the Alliance leadership will request that the CGIAR include the AP&P in the CGIAR Charter.

■ Also in Marrakech, the Alliance leadership approved a paper that had been developed to help establish important guidelines for inter-Center conflict resolution. Additionally, the Alliance Board set up five working groups to enhance the performance of the Alliance.

■ To date, the Future Harvest Alliance Office, an integral part of the CGIAR System Office, has been operated by two part-time staff members, with consultants hired for specific services. This office has assisted the Alliance leadership with meetings, publications, policy and program planning, including re-establishing the orientation program for new board members. A newly launched electronic newsletter appears quarterly. This newsletter, posted on the CGIAR website,

has helped to heighten awareness among the Centers and CGIAR stakeholders of the collective action under way among the Centers and with our partners. Growing demand for heightened collaborative work and collective action led to the decision to hire a full-time chief executive officer to head the Alliance Office. We are extremely grateful to the International Fund for Agricultural Development for its offer to provide a home in its offices in Rome for the Alliance Office, beginning late in 2006. For a complete report on the activities of the Alliance Office, please see [www.cgiar.org/pdf/fhao\\_annual%20report\\_2005\\_2005.pdf](http://www.cgiar.org/pdf/fhao_annual%20report_2005_2005.pdf).

■ In the course of the year, the Centers and their partners made progress in developing joint medium-term plans (MTPs) for sub-Saharan Africa. Activities in eastern and southern Africa will be led by the International Livestock Research Institute and the Association for Strengthening

Agricultural Research in Northern and Central Africa. In western and central Africa, the Africa Rice Center and the West and Central African Council for Agricultural Research and Development (known by its French and English acronym CORAF/WE CARD) will take the lead. The focus of their programs is to deliver greater impact and serve as vehicles for program alignment in the region. The MTPs will be submitted to the Science Council in 2006.

■ The Alliance also provided collective input for developing the CGIAR System Priorities, working closely with the Science Council to finalize their formulation. It also provided an analysis of the Science Council's comments on Center MTPs. A task force from the Alliance Deputy Executive<sup>2</sup> drafted an assessment report on the Systemwide and Ecoregional programs, concluding that World Bank funding had successfully leveraged significant resources from other donors.

Although we recognize the progress made, we realize that much remains to be done. The Alliance will continue to move forward in line with the declaration made in its guiding principles: "The allegiance of the Alliance is first and foremost to the poor."

Uzo Mokwunye  
*Alliance Board Chair, 2005*

William D. Dar  
*Alliance Executive Chair, 2005*

<sup>1</sup> Formerly the Committee of Board Chairs and the Center Directors Committee.

<sup>2</sup> Formerly the Center Deputy Directors Committee.