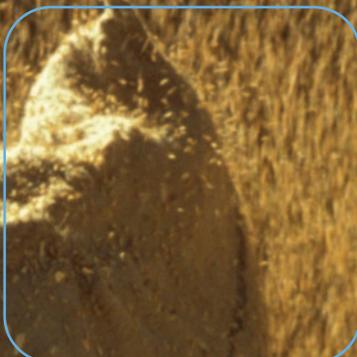


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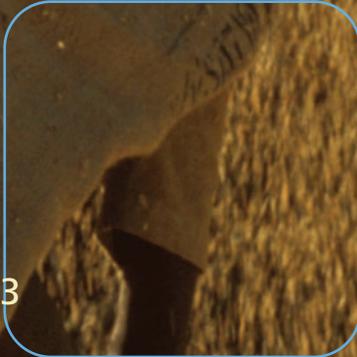
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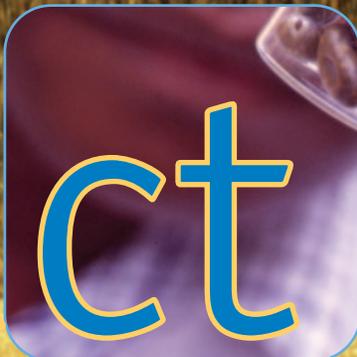
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Research

Annual Report 2003



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impact

everybody's business



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the cgiar at a glance



In 2003, CGIAR members contributed \$381 million—the single largest investment to generate public goods for the benefit of poor agricultural communities worldwide.



The Consultative Group on International Agricultural Research (CGIAR) is a strategic alliance of countries, international and regional organizations, and private foundations supporting international agricultural research Centers that work with national agricultural research systems, the private sector and civil society. The alliance mobilizes agricultural science to reduce poverty, foster human well-being, promote agricultural growth and protect the environment. In 2003, CGIAR members contributed \$381 million—the single largest investment to generate public goods for the benefit of poor agricultural communities worldwide.

More than 7,600 CGIAR scientists and staff work within the CGIAR alliance. Their research addresses every critical component of the agricultural sector, including agroforestry, biodiversity, food, forage and tree crops, environment-friendly farming techniques, fisheries, forestry, livestock, food policies and agricultural research services. Specifically, the research targets the special needs, crops and ecologies of poor agricultural communities worldwide.

The CGIAR has five areas of focus:

- **Increasing productivity** of crops, livestock, fisheries, forests and the natural resource base

- **Strengthening national systems** through joint research, policy support, training and knowledge-sharing
- **Protecting the environment** by developing new technologies that make more prudent use of land, water and nutrients and help reduce the adverse impacts of agriculture on ecosystems
- **Saving biodiversity** by collecting, characterizing and conserving genetic resources (the CGIAR holds in public trust some of the world's largest seed collections that are available to all)
- **Improving policies** that affect agriculture, food, health, the spread of new technologies, and the management and conservation of natural resources

Africa is a priority for CGIAR research.

The CGIAR alliance is open to all countries and organizations sharing a commitment to a common research agenda and willing to invest financial support and human and technical resources. In 2003, the Gulf Cooperation Council joined the alliance, and more members are expected in the near future.

message from the chairman and director: an evolving cgiar

The year 2003 marked a significant period in the CGIAR's global effort to rally quality science in the service of poor farmers.

CGIAR has long recognized that science-for-development is about achieving beneficial impacts for people and their livelihoods, as well as for the ecosystems that sustain all life.

Accordingly, impact is the *leitmotif* for this year's annual report.

The stories that follow provide snapshots of knowledge partnerships geared to local impacts. They demonstrate the CGIAR's catalytic role in bringing together partners to generate innovations that deliver real benefits to poor people. The stories also reveal the different ways in which impact is measured and valued. A substantial report commissioned by the Standing Panel on Impact Assessment (described at page 13) concludes that every dollar invested in the CGIAR has generated \$9 worth of additional benefits in the developing world. In interviews conducted in the central highlands of Kenya, Nelson Maturi, a low-income farmer, said that gaining membership in a local dairy goat association helped increase his knowledge and income, enabling him to send all of his children to school.

Notable achievements by CGIAR scientists during 2003 include successes in rehabilitating agriculture in conflict-ridden areas; mitigating natural disasters; improving the productivity of food crops, fisheries, forests and livestock; and fostering improved policies that increase food availability while enhancing trade opportunities. It is a measure of their success that in 2003 alone over 124 CGIAR scientists received awards for scientific excellence, science communications and public service.

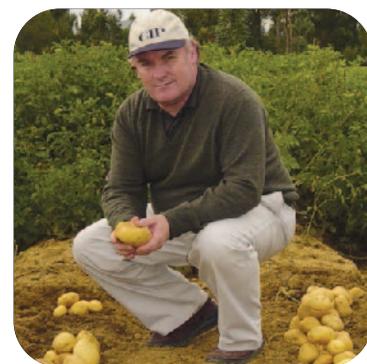
Despite these achievements, much remains to be done, especially in Sub-Saharan Africa. The CGIAR and its partners are complementing their focus on impact by developing new ways of working.

To increase effectiveness, we have adopted an evolutionary approach to reform. We recognize that, while change may be crucial to effectiveness and survival, so is the need for continuity in research activities directed at achieving balanced development.

In keeping with the evolutionary approach, Boards of several CGIAR Centers have begun exploring how to better coordinate their activities, including streamlining research and improving governance. Even as these discussions unfold, it is clear that the CGIAR must maintain laser-like focus on its core competency: harness science for fostering growth that increases poor people's incomes and promotes sustainable development through new technologies and policies that reduce agriculture's adverse footprints on the environment.

In 2003, the Group recommended that IFPRI absorb ISNAR's core programs and relocate them to Africa. After extensive consultations, many conducted in virtual mode, we made substantial progress, and plans are on track for the ISNAR program to begin functioning from Addis Ababa under IFPRI governance. This rearrangement will facilitate operational efficiencies and effectiveness.

The CGIAR is expanding its interaction with its partners. At the 2003 Annual General Meeting hosted by the Government of Kenya, we welcomed the Gulf Cooperation Council as our sixty-third Member, a tally that now includes 25 developing and 22 industrialized countries. The CGIAR is a true South-North partnership. In Nairobi, we launched the Innovation Marketplace to promote,



*Ian Johnson, Chairman, CGIAR,
visits Huancayo, Peru.*



Francisco Reifschneider, Director CGIAR, with Syrian farmer Mr. Ibrahim Saliem, from Kesabia village, Aleppo, Syria.

The stories that follow ... demonstrate the CGIAR's catalytic role in bringing together partners to generate innovations that deliver real benefits to poor people.

expand and strengthen relationships with civil society organizations while catalyzing innovation across the CGIAR system. Three pilot Challenge Programs are off to a good start. The Gates Foundation became a major contributor to HarvestPlus—the biofortification Challenge Program. Austria returned to the CGIAR as a contributing member, Canada doubled its contribution, and the United Kingdom has greatly increased its support. We thank our investors for their confidence in the CGIAR's family of scientists.

Globally, all eyes are focusing on the development needs of Sub-Saharan Africa. Two Task Forces have been formed. One is looking at achieving programmatic alignment of CGIAR efforts, and the

other is developing structural and organizational options for consideration by the Group. A world-class Science Council has been appointed and will help steer the scientific effort to maximize development impacts.

At the CGIAR, impact is everybody's business. In its march forward, the CGIAR affirms its commitment to make the world a better place, especially for those who most need the benefits of science.

Ian Johnson
CGIAR Chairman

Francisco Reifschneider
CGIAR Director

enhancing the quality of cgiar science: a science council perspective

As part of CGIAR reforms, the Technical Advisory Committee (TAC) of the CGIAR was transformed into a Science Council (SC) in January 2004, with an interim Science Council (iSC) operating from January 2002 until September 2003. During this transition period, the iSC was chaired by Emil Javier with TAC members serving as iSC members. The iSC met twice during 2003 and had a busy and productive final year implementing its advisory responsibilities. The iSC was ably supported by iSC Secretariat staff and received full cooperation from the CGIAR Members, CBC, CDC, Centers, the Global Forum on Agricultural Research (GFAR), Regional and Sub-Regional Organizations, and the CGIAR Secretariat.

This contribution highlights accomplishments and progress in the principal areas of the iSC's responsibility and now taken up by the Science Council:

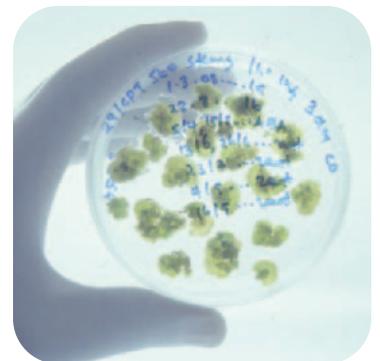
- Developing policy, priorities and strategies through strategic considerations in the external environment
- Ensuring the relevance and quality of science
- Evaluating challenge programs
- Commenting on Center 2004-06 Medium-Term Plans and 2004 Financing Plans
- Assessing the CGIAR System's impact (see related story on p. 13)

Following completion of the CGIAR's new Vision and Strategy, TAC/iSC resumed its work on science policy and priorities and strategies through strategic considerations in the external environment likely to influence the System's future priorities and strategies and research portfolio. During 2003, the iSC continued its efforts to facilitate the implementation of the seven strategic planks of the CGIAR's Vision and Strategy. It focused on designing and implementing a new approach to

CGIAR priority setting, involving extensive virtual consultations with global stakeholders and scientists, building on its work on regional approaches to research planning with regional organizations and Centers. In terms of strategic reviews of topics, special attention was paid to biosafety, food safety, social research, water management, NRM and abiotic stress genomics.

During 2003, external reviews of Centers (ISNAR, ICRISAT and IPGRI), and Systemwide Programs and stripe reviews of themes (Capacity Building) that cut across Center mandates have been a principal means by which iSC fulfilled its responsibility to assure the relevance and quality of CGIAR science. The iSC also reviewed "Improving Livelihoods and Natural Resources Management in Sub-Saharan Africa," a Challenge Program put forward by the Forum for Agricultural Research in Africa (FARA). The iSC continued its deliberations on the overall monitoring and evaluation processes in the CGIAR and prepared a document entitled "Changing Monitoring and Evaluation in the CGIAR." The TAC/iSC had been working on new approaches to monitoring and evaluating Center performance for two years. The paper, which benefited from broad consultations among the members, the CBC and the CDC, was discussed and approved at iSC/TAC 84 in June 2003.

The Chair and members of the new Science Council were confirmed at AGM 03. They were identified through a global search led by Dr. Mohamed Hassan, Executive Director of the Third World Academy of Sciences. The Science Council comprises six eminent scientists from the North and the South, and I am privileged to serve as Chairman. Three members of the iSC agreed to serve for one additional year to provide continuity. The primary role of the Science Council is to



“... the Science Council plans to complete the review of CGIAR priorities and strategies while moving forward with strategic studies related to food safety, ethics and science, conservation of animal and fish genetic resources, and international public goods....”

enhance and guard the relevance and quality of science in the CGIAR System by:

- Advising the CGIAR on strategic scientific issues relevant to the Group's goals and mission
- Providing independent, credible and authoritative advice on scientific issues relevant to the international agricultural research system
- Developing partnerships with the wider scientific community for the benefit of international agricultural research

The Science Council will function as a committee of the whole. However, most of its activities will be facilitated through four Standing Panels on Priorities and Strategies, Monitoring and Evaluation, Impact Assessment, and Mobilizing Science. The Standing Panels consist of a Science Council member who serves as chair and two members appointed from outside the Science Council. Three of the four panels each have one additional Science Council member. Given the complementarity of their functions, the Standing Panels will interact closely with each other and

help maximize the Science Council's ability to fulfill its responsibilities.

In 2004, the Science Council plans to complete the review of CGIAR priorities and strategies while moving forward with strategic studies related to food safety, ethics and science, conservation of animal and fish genetic resources, and international public goods within the concept of intellectual property rights. It plans to follow up on opportunities to organize genomics research in the CGIAR more effectively and efficiently. The Science Council will formulate a new evaluation model for the CGIAR and track changes in CGIAR science based on the medium-term plans of Centers, Systemwide Programs and Challenge Programs. Finally, the Science Council will develop a strategy for mobilizing science, prepare annual reports on the state of global agricultural research, and begin planning for an international science symposium in 2006.

Per Pinstrup-Andersen
Chairman
CGIAR Science Council

perspectives on the world bank-cgiar partnership

The World Bank has played multiple roles in the CGIAR, as founder, committed supporter and cosponsor. Given the dire forecasts of the 1960s and 1970s that many developing countries would succumb to famine, the Bank was asked to create a consultative group for international agriculture to ensure that the developing world would capitalize on the then-scientific advances in rice and wheat and that a consistent pipeline of science-based technologies would be available to developing country farmers. The Bank responded to the challenge with the help of the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), the Ford Foundation, the Rockefeller Foundation and others, and founded the CGIAR. Today we can all look back at a decades-long successful partnership that has been described by President James D. Wolfensohn as “one of the oldest and most significant and effective partnerships we have.”

Much has changed since the CGIAR was founded, both within the CGIAR and in the development community. CGIAR Membership has grown from 18 at its founding to 63 today, in and of itself a testimony to the success of the system. However, the climate for the CGIAR has not always been easy. Since the early 1980s the specter of famine has been removed by a downward trend in food prices and an upward trend in overall food production. Despite the persistence of poverty in the rural areas of the developing world, the trend in donor assistance to agriculture has been sharply downward, although there are positive signs of a reversal in this trend.

The new millennium brought a new focus on the world's poorest citizens with the setting of the Millennium Development Goals. These goals cannot be achieved without a focus on rural poverty

and agriculture, which is the engine of economic growth in rural areas of most developing countries. Thus the CGIAR's role today is as important as it was at its launch in 1971.

An effective partnership in today's new development assistance paradigm, however, requires an evolving CGIAR system, one responsive to the changing needs of farmers, the drive for results, changing operational structures and environments in which it finds itself. The World Bank applauds the CGIAR's willingness to respond to the new environment, to take the difficult decisions on reforms and to operationalize them. These efforts are already bearing fruit: new challenge programs are mobilizing resources—financial, human, intellectual, and technical—that bring together a variety of partners who have not traditionally worked closely with the CGIAR. The HarvestPlus program on biofortification is a prime example of using science to fight poverty: breeding crops with higher yields to improve the incomes of farmers and with enhanced mineral and micronutrient densities to mitigate the scourge of malnutrition. Effective implementation of these reforms will ensure that the CGIAR remains on the cutting edge of scientific discovery for the benefit of farmers in the developing world.

The World Bank has recently revised and launched its own agricultural and rural development strategy. The strategy's focus puts the rural poor in the driver's seat and emphasizes working in partnership with them and the rest of the development community. The CGIAR was an important partner in the formulation of the strategy, with six CGIAR Centers collaborating on regional workshops to articulate the needs and role of agriculture in the rural development process. Our goal is to forge even closer ties as we march forward in the war





“The CGIAR is, and will continue to be, an important partner with the World Bank as together we strive for successfully implementing our strategy to achieve the goal we all share—the eradication of rural poverty in the developing world.”

on rural poverty. We need to better capture the synergies resulting from the unique blend of different but complementary specialist skills within the Bank and the CGIAR.

One recent initiative provides a good illustration of these synergies. Training programs for World Bank agriculture and rural development staff have been undertaken in partnership with CGIAR Centers, CIMMYT and ICRISAT. This partnership has enabled World Bank staff to see agricultural science for development in action and to make use of extensive field visits during training. CGIAR Center staff have gained exposure to broader policy considerations, at both the macro and micro levels, that are inherent in the adoption and diffusion of innovations in agricultural science.

Sharing information is vital for quality science and achieving impact. Staff exchange programs between the World Bank and the CGIAR are a particularly effective way to build relationships and foster more in-depth understanding of the operating environments, constraints and opportunities each institution faces.

The CGIAR is, and will continue to be, an important partner with the World Bank as together we strive for successfully implementing our strategy to achieve the goal we all share—the eradication of rural poverty in the developing world.

Kevin Cleaver
*Director, Agriculture and Rural Development
Department, The World Bank*

building prosperity through partnership: india and the cgiar



The Indian Council of Agricultural Research (ICAR) administers one of the world's largest National Agricultural Research Systems (NARS). Its collaboration with the CGIAR represents one of the longest and most extensive partnerships. Indian NARS have played a significant role in transforming India's food situation, from an era of chronic deficits to surpluses and food grain exports. This success story, referred to as the "Green Revolution" in India, was made possible by CGIAR Centers such as CIMMYT and IRRI.

India became a CGIAR Member in 1981, although its involvement dates back to the origins of CGIAR. In addition to serving as the headquarters of ICRISAT, established in 1972, India hosts regional and subregional offices of CIMMYT, CIP, IFPRI, IPGRI, ILRI, IRRI, IWMI and the World Agroforestry Centre. The presence of CGIAR Centers in India reflects the mutual trust that underlies the India-CGIAR partnership. Some benefits of the India-CGIAR partnership include the following:

■ **Managing Natural Resources Sustainably:**

The Rice-Wheat Consortium for the Indo-Gangetic Plains, established in 1994, has generated resource-conserving technologies such as raised-bed planting, zero-till agriculture and laser leveling. Zero-till agriculture alone saved nearly \$23 million during 2002-03. These technologies led to savings of irrigation water, fertilizer and seeds, as well as to significant improvements in soil health.

■ **Crop Improvement:** In collaboration with CIMMYT, Indian NARS have released four Quality Protein Maize hybrids (Shaktiman 1, 2, 3 and 4). The ICAR-ICRISAT partnership has resulted in the release of over 100 improved varieties of sorghum, pearl millet, chickpea, pigeonpea and groundnut in India. India participates in IRRI's Asian Rice Biotechnology Network (ARBN) and CIMMYT's Asian Maize Biotechnology Network (AMBIONET).

■ **Pulses and Oilseeds:** India is a major producer and consumer of pulses and vegetable oil. ICRISAT has made significant contributions, including developing improved groundnut varieties (ICGS-37, ICGS-44, ICGS-76, and ICGV-86325), and short-duration Pragati pigeonpea, which has facilitated double-cropping, nearly doubling yields and increasing farmer incomes. Two chickpea varieties released in India are boosting production, while integrated pest management techniques for pigeonpea and groundnut have substantially reduced insecticide use by up to 100 percent on some fields.

■ **Tuber Crops:** Exchange of potato genetic material between ICAR and CIP led to development of two high-yielding, disease-resistant potato varieties (Kufri Chipsona-1 and Kufri Chipsona-2). Scientists from the Central Potato Research Institute have received training at CIP on DNA fingerprinting and marker-assisted selection.

India is a member of the International Coconut Genetic Resources Network (COGENT), and an International Coconut Genebank (ICG) has been established. Similarly, through the IPGRI-INIBAP exploration program in northeastern India, new genetic material of banana has been identified. ICAR and WorldFish Center are focusing on sustainable exploitation of coastal fish stocks, genetic improvement of carp species and DNA fingerprinting. India also participates in the Challenge Program on Water and Food.

We look forward to strengthening the India-CGIAR partnership for the benefit of poor farmers.

Mangala Rai

Secretary, Department of Agricultural Research and Education and Director-General, Indian Council of Agricultural Research, Ministry of Agriculture, Government of India

The India-CGIAR partnership is based on a common vision, mutual interest and shared expertise.

engaging members to realize the CGIAR vision

“Good governance, management and corporate behavior can all enhance our ability to achieve beneficial impacts.”



The Committee of Board Chairs (CBC) endorses and reinforces the concept that impact is the business of every element of the CGIAR System—donors and investors, the Science Council, stakeholders, beneficiaries, and the Centers that together have the capacity to generate knowledge-based products and technologies that create beneficial impacts. Consequently, it is the Boards of Trustees that carry the ultimate responsibility for ensuring that the Centers under their charge, both individually and collectively, generate impact.

In its work, CBC helps the CGIAR System to generate impact by listening to signals from the System’s diverse elements and beyond, and by facilitating collaborative work and synergies between the Centers and their partners to maximize returns on investment.

Specifically, working with the System Office we have contributed to greater harmony within the System by the following:

- Developing model guidelines for grievance procedures
- Revising the process for the nomination of Board Members to give CGIAR Members greater input into their selection
- Establishing terms of reference for a comprehensive study of remuneration packages across the System
- Developing a new board orientation program in recognition of the changing needs of governance in the System

These advances will all contribute directly and indirectly to the impact of the CGIAR System. Good governance, management, and corporate behavior can all enhance our ability to achieve beneficial impacts.

We also express our appreciation of two particular initiatives that will enhance the impact of the System.

- Finalization of the Science Council, arguably the key driver of the System. The Council has our encouragement and support as it performs important tasks in the reform process, including evaluating Challenge Programs, developing performance indicators and assessing impacts.
- Completion of the World Bank Operations Evaluation Department’s assessment, “The CGIAR at 31,” which is a particularly powerful and useful report for the System. The reforms recommended would ultimately form part of the ongoing efforts to develop performance indicators suitable for all components of the System.

We affirm our desire to fully engage the membership, and indeed the System as a whole, in vigorous and productive exchanges so that the Centers can contribute fully to the realization of the vision for the CGIAR System.

John Vercoe
Chair, Committee of Board Chairs (2003)

enhancing efficiency to maximize effectiveness

The Center Directors Committee (CDC) continued to play a leading role in contributing to the process of substantial change for enhanced efficiency and effectiveness of the CGIAR. We embraced a programmatic approach to research planning as a major pillar of the change process, and we contributed to the development of pilot Challenge Programs as a model for expanded partnerships and enhanced quality of System outputs.

Coherence and harmonization of initiatives played important roles and accounted for much of the CDC's time and attention. The Committee developed a code of conduct to optimize collaboration and maximize synergies among the Centers. The Committee also focused on ways to reduce costs by using common services and avoiding duplication of effort across the Centers. This assumed greater importance due to the increasing restrictions on investor funding and the decreasing proportion of contributions to the core budgets of the Centers.

The CDC took active measures to streamline and coordinate public awareness and resource management efforts. We closed the Public Awareness and Resource Mobilization Committee (PARC), with the expectation that this work would now be accomplished by the Marketing Group, and we formulated an Integrated Communications and Resource Mobilization Strategy. A code of conduct for approaching investor agencies for funding was also developed.

In response to requests from partners and investors, we are actively pursuing a policy of

decentralization. The key arguments to decentralizing activities are to accomplish the following:

- Work closely with national programs and sub-regional organizations to respond to regional, subregional and national priorities
- Bring Center scientists and programs closer to the field to pursue applied research and achieve impact

During 2003 the CDC continued discussions on refining the concept of performance indicators as a means to increase the efficiency and effectiveness of our activities. We have scheduled implementation to start in 2005, after the contributing Members of the CGIAR have agreed upon unified performance indicators for the entire System.

The CDC remains focused on ensuring maximum support to all Centers and exploring ways in which to bring additional new financial support to both the Centers and to the Challenge Programs. We look forward to lessons learned from the initial funding of the Challenge Programs.

We will continue serious efforts to work closely with various regional fora in identifying the local, regional and national priorities for agricultural research for development and in integrating these priorities with the research agenda of the Centers.

We will continue to do so to achieve our goal of fighting poverty and hunger.

Adel El-Beltagy
Chair, CDC (2003)



“The CDC remains focused on ensuring maximum support to all Centers and exploring ways in which to bring additional new financial support to both the Centers and to the Challenge Programs.”



For Nelson Maturi, a Kenyan farmer, the impact of agricultural research is very real: children in school.

impact of the cgiar:
everybody's business

impact of the cgiar

Impact is indeed everybody's business, and impact assessment is the business of the Science Council's Standing Panel on Impact Assessment (SPIA). The standing panel was formed to facilitate better assessment of impacts, raise awareness and promote accountability. For this special impact-focused Annual Report, the SPIA highlights some recent assessments. A detailed account of all CGIAR impact assessment reports is available through the Science Council website at www.sciencecouncil.cgiar.org.

Benefits and Costs of the CGIAR

Since its founding in 1971, the CGIAR has invested approximately \$7.12 billion in research and research-related activities. It is reasonable to ask: *Do the documented benefits from CGIAR research justify the total investment in the CGIAR so far?* During 2003, the SPIA commissioned David Raitzer to analyze compiled estimates of large-scale benefits for selected activities for which the benefits are widely known and generally accepted, and to compare those with the total investment in the CGIAR to date.

Raitzer constructed five scenarios within which to assess cost-benefit ratios. Against an aggregate investment of \$7.12 billion (in 1990 US dollars, with \$6.90 billion invested in the CGIAR, in addition to relevant pre-CGIAR costs), all five scenarios produced cost-benefit ratios in substantial excess of one, indicating investment efficacy. Including only "significantly demonstrated" studies that empirically attribute CGIAR-derived contributions to collaborative efforts (an extremely conservative scenario) results in a ratio of 1:9; if all "significantly demonstrated" studies are considered, with assumed attributive coefficients applied, this ratio rises to 3:8. The "plausible" scenario results in a ratio of 4:8, which when extrapolated to the present rises to 9:0 and when extrapolated to 2011 rises to 17:3.

Thus for every dollar invested in the CGIAR, \$9 worth of additional benefits have been produced in the developing world, catalyzing substantial additional "multiplier effects" for poor producers and consumers in the process.

None of this could have been achieved without the investment in staff and resources by the national agricultural research programs.

Impact on Poverty Reduction

During 2003, Michelle Adato and Ruth Meinzen-Dick of the International Food Policy Research Institute (IFPRI) assessed the impact of the research conducted by several CGIAR Centers.

A wide variety of direct impacts on adopting households were identified. Positive effects included increased production and knowledge, as well as empowerment of women. Negative effects included increased vulnerability, decreased soil fertility, and debt from fertilizer purchase. The research indicates that where technologies and their delivery are specifically designed to reach the poor, and especially women farmers, the poor are more likely to benefit. Significantly poor consumers, who typically spend more proportionately on basic commodities, benefit more from falling real food prices derived from the application of agricultural technologies than small farmers or other consumers.





“...for every dollar invested in the CGIAR, \$9 worth of additional benefits have been produced in the developing world, catalyzing substantial additional ‘multiplier effects’ for poor producers and consumers in the process.”

The study concludes that a very significant impact of CGIAR agricultural research on poverty is the indirect impact of productivity growth on reducing real food prices, which benefits both urban and rural poor.

Positive Impact on Environment

The SPIA has recently commissioned assessments of the impact of application of the Green Revolution technologies. The conclusion from these studies is that, while some negative environmental impacts have been associated with the agricultural intensification process, there have also been some counterbalancing positive environmental impacts, particularly with respect to land savings. More intensive production and greater output per hectare means that less land has been required to produce a given output of food crops than would have been the case without CGIAR research.

The SPIA-commissioned study estimates that CGIAR research contributed to production increases that, given the 1960 productivity levels, amount to about 100-240 million hectares in land equivalent terms for developing countries alone; i.e., that much more land would have been needed to produce the output of today at 1960 productivity levels. CGIAR research has led to higher land productivity, thereby reducing pressure on forests, grasslands and the associated biodiversity.

Impact of CGIAR's Crop Germplasm Improvement Research

Research by Robert E. Evenson and Douglas Gollin involving input from eight CGIAR Centers provides the most comprehensive documentation of the beneficial impacts of CGIAR crop genetic improve-

ment. The study covers the production, diffusion and impact of improved crop varieties for 11 important CGIAR-mandated food and feed crops in developing countries from 1960 through the late 1990s.

The study found that growth from varietal improvement has been realized in all crops, but at very different rates by region. By the end of the 1990s, all crops except beans were achieving high growth rates in productivity through varietal improvement. The average annual growth in productivity from crop germplasm improvement (CGI) research across all crops and regions between 1960 and 1998 was 0.72 percent, with the highest rates in Asia (0.88 percent). In Sub-Saharan Africa the annual productivity growth averaged 0.28 percent. The CGIAR contribution as a share of this total CGI annual growth was estimated to be between 40 percent and 45 percent, depending on the assumptions used about substitution effects and on the crop and the region.

The findings support the proposition that CGIAR investments in crop germplasm improvement have had positive impacts for all the study crops. These impacts have been substantial, partly because of higher leverage through IARC-NARS joint production, which underscores the importance of CGIAR-NARS partnerships. The placing of crop germplasm improvement at the core of CGIAR Center programs appears to have been well justified.

NERICAs

Another recent example of the type of research that makes the CGIAR such a good investment is found in the new improved rice varieties.

Developed by the Africa Rice Center (WARDA) for specific adaptation to harsh growing conditions of upland rice ecologies of Africa, the New Rices for Africa (NERICAs) are spreading fast.

NERICAs provide multiple benefits, including higher yields (between 25 percent and 250 percent) and increased tolerance to droughts, pests and weeds. Developed less than 10 years ago, NERICAs are now planted on an estimated 23,000 hectares in West Africa alone and their use is spreading across central and eastern Africa. In a region where annual rice imports top \$1 billion, planting of higher-yielding NERICAs have helped Guinea save an estimated \$13 million in rice import bills. Research on NERICAs involved national agricultural research programs in 20 African countries and advanced research institutions in China, Japan, the United Kingdom and the United States. Dr. Monty Jones's pioneering research leading to the development of NERICAs has been internationally recognized.

The Way Ahead

Accumulating evidence suggests that investments in the CGIAR are a sound strategy, but the process

of impact assessment continues. The Science Council is initiating impact assessment activities in natural resources management, policy and social science research, and a major assessment is underway to better understand the impacts of CGIAR training activities.

In all of its work, the CGIAR complements NARS activities and relies heavily on its NARS partners as well as those from the developed world to achieve impact. The CGIAR *modus operandi* is based on partnerships and recognizes the importance of long-term, close relationships with scientists in client countries where downstream research, adaptation and knowledge transfer activities take place. Indeed, the CGIAR finds that, as NARS advance, many of the research areas in which it has been involved can successfully be taken over by the NARS partners and their cadres of researchers. This opens opportunities for the CGIAR to move into new areas where different partnerships can be forged and significant new impacts generated.

Hans Gregersen
Chair, Science Council Standing Panel on Impact Assessment

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For more information, readers are invited to contact Timothy Kelley, Senior Research Officer, CGIAR Science Council Secretariat, c/o Food and Agriculture Organization of the United Nations, Terme di Caracalla, 00100 Rome, Italy. Tel: (+39) 06 57054210. E-mail: timothy.kelley@fao.org.

Copies of available papers are on the enclosed CD-ROM.

boosting zero tillage in south asia with private-sector support



“The rapid expansion of zero tillage was made possible by the adoption of specialized implements called ‘seed drills’... developed jointly by the Rice-Wheat Consortium, private companies, and public sector research organizations.”

Public-private partnerships are necessary to bring the benefits of science to poor farmers. In an excellent example of public-private synergies, CGIAR researchers and partners joined hands with the business community to promote zero-till agriculture in South Asia’s bread basket.

Through the efforts of the Rice-Wheat Consortium (RWC) for the Indo-Gangetic Plains and its many partners from the public and private sectors, farmers in South Asia have begun using practices that save water, fuel and other inputs and that allow them to diversify their cropping systems. The most prominent of these practices—zero tillage to sow wheat after rice—was used on nearly 1.3 million ha during the 2003-04 wheat season, a dramatic increase from only a few years ago, according to RWC estimates.

The rapid expansion of zero tillage was made possible by the adoption of specialized implements called “seed drills” for sowing directly into unplowed soil and crop stubble. This is where the private sector stepped in. The seed drills were developed jointly by the RWC, private companies, and public sector research organizations, both national and international. Over 20,000 seed drills have been manufactured and sold by more than 80 companies. Originally designed for wheat, the implements are increasingly used for a range of crops, including chickpea, lentil, maize, pigeonpea, rice and sorghum.

This tillage revolution is different from the Green Revolution in several ways. One major difference is that it depends greatly on resources and time invested by the private sector.

Such advances would not have occurred without the willingness of companies to invest time and resources in machinery development, to adapt

designs based on farmer and researcher feedback, to facilitate timely delivery of implements for farmer experimentation, to provide servicing and repair, and to rapidly increase production to meet demand while maintaining quality and competitive prices.

As with many good things, fruitful public-private sector partnerships take time to build. In the mid-1980s, CIMMYT introduced and promoted testing of inverted-T planters from New Zealand. As part of expanded research and development efforts in the early 1990s, several manufacturers in India and Pakistan supplied prototype seed drills for farmer experimentation. Testing and development continued throughout the decade, supported among other ways by study tours. In 2000, for example, the RWC organized a visit by 23 scientists, farmers and manufacturers from Bangladesh, China, India, Mexico, Nepal and Pakistan to areas where zero tillage had been widely adopted. A later visit to Australia by South Asian manufacturers allowed them to see how manufacturers there addressed the problem of sowing directly into large amounts of crop residues. The capacity and confidence of South Asia’s companies have grown to encompass development of multicrop seed drills, implements for sowing in raised soil beds, animal-drawn zero tillage implements, and a range of other conservation agriculture equipment.

The project is an excellent example of a public-private partnership for the common good.

Raj K. Gupta
*Regional Facilitator, Rice Wheat Consortium
for the Indo-Gangetic Plains, CIMMYT*
and
Larry Harrington
Director, Natural Resources Group, CIMMYT

the future harvest centers

of the cgiar



"It will require the commitment of scientists and scientific institutions throughout the world...to bring the benefits of science to all."

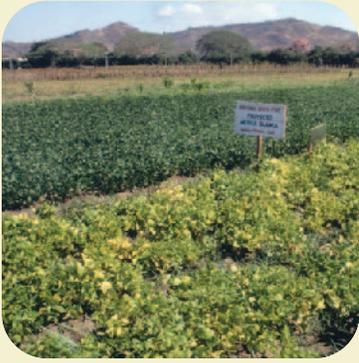
Kofi Annan
*Secretary General
United Nations*

Achieving Impacts to Benefit Poor People

The following stories reflect the numerous ways in which CGIAR-supported Centers are achieving wide-ranging impacts, using multidisciplinary approaches in strong partnership with stakeholders to create farming solutions that benefit poor people.

Whether the challenge is to help a country recover from conflict or natural disasters, such as in Afghanistan or Mozambique; improve farmer incomes through higher-yielding crops, particularly barley and rice; improve the productivity of aquaculture and livestock; or foster improved policies, science is making a difference.

The stories reported provide only a snapshot of Center achievements during 2003. For more complete information, please visit the websites of individual Centers listed with each story.



uniting efforts against a global pest



Experience shows that improved cropping systems developed with support from CGIAR Centers can serve as entry points for broader economic development.

Species of whiteflies, dubbed “the pest of the 20th century” by CNN and *Newsweek*, have cut yields of 10 major food and industrial crops grown in tropical and temperate regions. Losses worth many millions of dollars have been registered in Africa, Asia, Australia, Europe and the Americas. Since 1996, three CGIAR Centers—the International Center for Tropical Agriculture (CIAT by its Spanish acronym), CIP, and IITA—and the Taiwan-based Asian Vegetable Research Development Centre (AVRDC) and Kenya-based International Center for Insect Plant Ecology (ICIPE) have joined forces under the CGIAR’s Integrated Pest Management (IPM) Program to combat the whitefly menace.

Like all CIAT projects, the Tropical Whitefly Project has been made possible by the generous investors who provide core support to all CGIAR Centers with additional project-specific support from DANIDA, DFID, ACIAR, NZAID, USDA and USAID. The project has completed its second phase, with scientists successfully identifying, validating and implementing sustainable strategies for integrated management of the whitefly in key crops (common bean, cassava, sweet potato, tomato and peppers) and other horticultural crops. More than 20 partners from national agricultural research systems, and an equal number of universities, advanced research institutions, and civil society organizations have played active roles in this work.

The project has already achieved substantial results.

For example, cassava varieties with resistance to whitefly-transmitted viruses have been distributed widely in Africa and Latin America. The results are impressive. Improved cassava varieties have helped avert famine in many areas in Africa, while improved beans have made it possible to restore crop production in regions of Latin America where farmers had abandoned growing beans because of the whitefly problem.

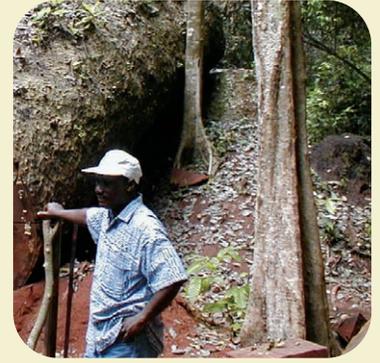
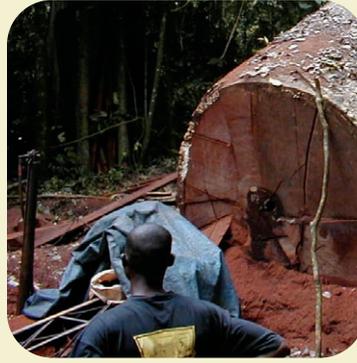
IPM strategies developed through the Tropical Whitefly Project have facilitated crop diversification, strengthening food security and improving the livelihoods of small farmers. In El Salvador, for example, farmers with less than 2 hectares who diversified into mixed cropping systems earned up to 10 times more income than farmers practicing monoculture. Once crop production problems were diagnosed and solved, farmer field schools and other participatory research approaches were used to increase adoption of effective IPM strategies.

Results from the Tropical Whitefly Project have contributed to national policies to boost food production and nontraditional agricultural products for export. In some countries the results have influenced the adoption of legal and financial measures that favor the adoption of IPM strategies.



International Center for Tropical Agriculture (CIAT)
Headquarters: Cali, Colombia
www.ciat.cgiar.org

developing virtual laboratories for the congo basin



Poor logging practices, slash-and-burn farming and other human activities are leading to the degradation of the tropical forests in the Congo Basin. This is a serious matter, not just for nature—a quarter of the world's humid tropical forests are found here—but also for the people who depend on the forests. Therefore, forest-related research in the region needs rapid strengthening.

In 2003, the International Tropical Timber Organization funded and the Center for International Forestry Research (CIFOR) managed, in partnership with the University of Madrid (UAM) and several regional research organizations, a project to explore ways of improving forest research capacity in the Democratic Republic of Congo, Cameroon, Congo, Gabon and the Central African Republic.

The virtual laboratory team of scientists from the Congo Basin, CIFOR and UAM analyzed forest research capacity in the region. They found a serious lack of adequately funded scientific personnel; poor collaboration and communication between research centers and decision-makers; limited access to scientific information; and little

regional collaboration among research centers. Can scientists working together in virtual labs overcome these problems? The researchers set up a pilot study to explore a forestry issue of regional significance. Forestry concessions in the Congo Basin are frequently poorly managed and lead to the degradation of forest resources. The virtual laboratory team assessed the ecological and social sustainability of a sample of forest concessions and explored ways to improve them. Expert meetings were held in Kribi and Yaoundé in Cameroon, and in Libreville, Gabon. National scientists conducted the study with guidance from CIFOR and UAM scientists.

The pilot project showed that setting up virtual laboratories was an efficient and relatively inexpensive way of studying regional forestry problems in the Congo Basin.

The study illustrates CIFOR's learning-by-doing approach to capacity-building activities. CIFOR scientists now have working links with more than 300 researchers based in some 50 international, regional and national organizations spread across 30 countries.

The pilot project showed that setting up virtual laboratories was an efficient and relatively inexpensive way of studying regional forestry problems in the Congo Basin.



Center for International
Forestry Research (CIFOR)
Headquarters: Bogor, Indonesia
www.cifor.org



fostering research with international impact

In the dry, hilly areas of Central West Asia and North Africa (CWANA), farmers struggle to produce enough winter wheat—their mainstay for food and income—under harsh conditions. The Government of Turkey has played a critical role in an international program to help them.

Infrastructure is mostly poor in CWANA's winter wheat areas. People have little contact with anyone who can provide new seed and information. Rainfall is scarce—less than 350 mm per year—and wheat yields often dip below 1.3 tons per hectare. Long, cold winters are followed by a short growing season that restricts options for producing multiple crops. Because the landscape is often hilly, farmers find it difficult and costly to mechanize or irrigate.

Yet wheat is the paramount crop in this region, sometimes accounting for half of all daily calories. The investment in breeding improved winter wheat varieties for the special conditions of developing countries has been limited. Rapid progress finally became possible when Turkey's Ministry of Agriculture, the International Maize and Wheat Improvement Center (CIMMYT by its Spanish acronym) and ICARDA, came to an agreement in

1990 to conduct the International Winter Wheat Improvement Program (IWWIP).

Like farmers, winter wheat breeders have only one growing season per year to do their work. It takes 12 to 15 years to breed a new variety and get it into farmers' fields. To date, 28 varieties developed by IWWIP have been released, and 35 others are being considered for release. Progress has been good partly because researchers crossed winter wheats with spring wheats developed by CIMMYT in Mexico. More than 75 percent of the IWWIP wheats that have been released or are scheduled for release are crosses between winter and spring wheats.

Afghan researchers maintained contact with IWWIP through long years of war, thanks to the Swedish Committee for Afghanistan and the Food and Agriculture Organization. All winter and facultative wheat cultivars currently registered in Afghanistan are derived from IWWIP nurseries. Much of Afghanistan's infrastructure was destroyed, but new wheat seed still moved from farmer to farmer. Without it, Afghanistan would have suffered even more hunger and malnutrition.

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CIMMYT

International Maize and Wheat Improvement Center (CIMMYT)
Headquarters: Mexico City, Mexico
www.cimmyt.org

combating potato diseases in partnership

The International Potato Center (CIP by its Spanish acronym) has a long-standing tradition of basing its research on solid partnerships with national programs in developing countries and with advanced partners in the developed world.

In 2003 CIP continued to give high priority to potato late blight disease, particularly in Africa, where national programs have already released some 60 potato varieties derived from CIP's late blight resistant breeding lines.

Bacterial wilt is second only to late blight in its deleterious impacts on potato production in developing countries. CIP has partnered with national programs, community groups and local civil society organizations in Bolivia and Peru to introduce bacterial wilt farmer field schools.

The Kampala City Council in Uganda recently passed a new set of ordinances that update the rules governing urban agriculture. During the negotiation process, the Kampala municipality and the business community were worried about health and nuisance issues, while community-based organizations were concerned about food security and livelihoods. Urban Harvest, a CIP initiative, helped the stakeholders to reach

agreement and address the concerns of participating groups.

A CIP-developed processing technique that turns sweet potato into nutritious pig feed is benefiting farmers and consumers in Indonesia's Papua Province. The process boosts household income by increasing the efficiency of farm and family resources and by increasing the number of pigs that can be raised in a given year. Key collaborators in the project include the Indonesian Legume and Tuber Research Institute, Papua's Jayawijaya District Livestock Office, and the South Australian Research Development Institute.

In 2003, the Global Mountain Program was relaunched with the creation of a new steering committee under CIP leadership. The Committee includes representatives from the World Agroforestry Centre's African Highlands Initiative, the Canadian International Development Agency (CIDA), CIP, the Consorcio para el Desarrollo Sostenible de la Ecorregión Andina (CONDESAN), the Global Forum on Agricultural Research (GFAR), ICARDA, INIA-Spain, and the Nepal-based International Center for Integrated Mountain Development (ICIMOD).



In 2003 CIP continued to give high priority to potato late blight disease, particularly in Africa, where national programs have already released some 60 potato varieties derived from CIP's late blight-resistant breeding lines.



International Potato Center (CIP)
Headquarters: Lima, Peru
www.cipotato.org

forging partnerships in barley breeding



The impact of barley improvement in Algeria, Ecuador, Egypt, Ethiopia, Iraq, Jordan, Morocco, Tunisia and Syria is estimated at about US\$92.5 million per year.



International Center for
Agricultural Research In Dry Areas
(ICARDA)
Headquarters, Aleppo, Syrian Arab Republic
www.icarda.org

In dry areas, barley is gold. Millions of people in tough marginal environments depend on the crop for food and feed. Domesticated some 10,000 years ago in the Fertile Crescent, barley today is grown on about 50 million hectares worldwide, with developing countries accounting for over half the area. In the highlands of some of the world's poorest countries barley plays a key role in the economy of the poor as one of few sources of food and the only source of animal feed.

In the early 1980s, the International Center for Agricultural Research In Dry Areas (ICARDA) forged partnerships with national agricultural research systems (NARS) worldwide through the provision of improved germplasm and capacity building in barley improvement research. These partnerships have generated a continuing stream of benefits. For example, more than 70 percent of the barley varieties released in 24 developing countries were developed using germplasm material provided by ICARDA.

The impact of barley improvement in Algeria, Ecuador, Egypt, Ethiopia, Iraq, Jordan, Morocco, Tunisia and Syria is estimated at about US\$92.5

million per year. This is about 13 times the amount these countries have invested in barley improvement research, including ICARDA's contribution, estimated at approximately US\$7 million. The internal rates of return (IRR) to research investment for the nine countries ranged between 22 percent and 51 percent. This high rate of return on investments in barley improvement research is consistent with other studies on investments in agricultural research.

In addition to yield advantage, the released varieties have important traits. The three barley cultivars released in Ecuador are resistant to yellow and/or leaf rusts. The improved varieties released in Tunisia and Jordan are disease resistant and drought tolerant.

The ICARDA-NARS partnership in barley improvement has also improved methodological approaches in barley breeding, including the use of landraces and the introduction of participatory plant breeding.

Sustaining these achievements calls for increased investments by donors and NARS.

fostering development in the semi-arid tropics

The year 2003 was an extremely successful year for researchers from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). They accomplished the following:

- ❑ Completed a strategic assessment of rural poverty in the semi-arid tropics for the International Fund for Agricultural Development (IFAD), which led the Country Strategic Opportunities (COSOP) review work that is helping influence the priorities identified in "IFAD's Strategic Direction in India: 2005-2009"
- ❑ Analyzed synthesis studies on research spillover impacts from ICRISAT's mandate crops from which a clearer picture has emerged about constraints to spillovers from Asia to West and Central Africa
- ❑ Hosted a meeting of social scientists to help researchers use social analysis to look beyond one-size-fits-all approaches and ensure that impact assessments take into account relevant historical, cultural and social factors
- ❑ Improved the quality of survey data used for policy analysis and advocacy in partnership with the National Centre for Agricultural Economics and Policy (NCAP) and provided the Village Level Studies methodology for adoption by NCAP and its 10 cooperating centers
- ❑ Pioneered the use of an innovation systems framework employed in the CGIAR initiative

on Institutional Learning and Change and identified developments necessary to help research Centers contribute more effectively to agricultural innovation systems

Two chickpea varieties (ICCV 2 and ICCV 88202) were grown on about 128,000 ha in Myanmar during 2002/03. The private sector joined the ICRISAT-led hybrid parents diversification consortium by providing continuing grants. Several ICRISAT-derived groundnut varieties have been adopted in seed-village programs in India.

To promote integrated pest management, seven village-level *Helicoverpa nuclear polyhedrosis virus (HNPV)* production units were established; over 1,000 extension specialists in Bangladesh, India, Kenya and Nepal were trained.

ICRISAT researchers, in partnership with the International Fertilizer Development Center (IFDC), identified local sources of rock phosphate. In Niger, Tahoua, a partially acidulated rock phosphate was found to be highly effective in pearl millet-cowpea rotations. The zai technique developed by ICRISAT and partners is leading to three- to four-fold yield increases. Finally, on-site courses on information management of new cutting-edge technologies were conducted, in partnership with ASK, a private foundation.

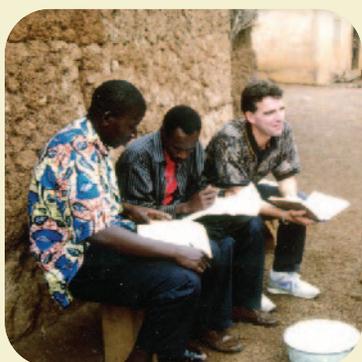


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International Crops Research
Institute for the Semi-Arid
Tropics (ICRISAT)
Headquarters: Patancheru, India
www.icrisat.org

studying the relationship between northern policies and southern farmers



... the 40 percent decline in the world price resulted in an 8 percent short-term increase and a 6 to 7 percent long-term increase in rural poverty.

The International Food Policy Research Institute (IFPRI) researchers use social science-based knowledge to foster food policies that benefit poor people. Broad policy research is important to better understand the dynamics of agricultural development and demonstrate the intricate links between food policies practiced in industrialized and developing countries.

Industrialized countries devote over \$300 billion a year to subsidize their farmers; this is five times the amount these countries provide for development aid. These subsidies contribute to poverty by stimulating production in industrialized countries and driving down world prices.

Cotton is often cited as one of the most striking examples of this problem. The U.S. government provides \$3.4 billion a year in subsidies to 25,000 large-scale cotton farmers whose sales account for 40 percent of the worldwide total. Between 2001 and 2002, world cotton prices dropped by almost 40 percent. Studies by IFPRI researcher Xinshen Diao and others suggest that U.S. cotton subsidies exacerbate price volatility and reduce the world price of cotton 10 to 15 percent below what it otherwise would be.

To examine the impact of world prices on poverty in producing countries, the World Bank asked IFPRI

to examine the price decline in the West African country of Benin. Cotton generates 40 percent of Benin's national income and 80 percent of its export earnings, so its global price has a direct bearing on whether people will eat in a country where one of every three people live below the poverty line.

IFPRI researcher Nicholas Minot with Professor Lisa Daniels of Washington College found that a 40 percent world price decline resulted in an 8 percent short-term increase and a 6 to 7 percent long-run increase in rural poverty. These findings were presented at World Bank and IFPRI seminars.

In May 2003, Brazil asked the World Trade Organization to show how U.S. cotton subsidies violated WTO rules and harmed Brazilian producers. A dozen cotton-exporting developing countries joined in the complaint. Brazilian officials asked Minot to testify on his research before the WTO dispute panel in October 2003. Subsequently, the panel ruled against the U.S. subsidies.

By providing evidence for the link between world cotton prices and poverty, IFPRI research clearly demonstrated how farm subsidies in industrialized countries hurt farmers in developing countries.



International Food Policy
Research Institute (IFPRI)
Headquarters: Washington, D.C.,
United States of America
www.ifpri.org

attaining the mozambique miracle

For agrarian countries affected by natural disasters, restoring agricultural capacity is vital to efforts to mitigate disaster and re-establish the conditions for economic growth.

Three years ago, the worst floods in half a century devastated Mozambique, wiping out food supplies and leaving thousands homeless. The loss of farms, livestock and granaries resulted in widespread suffering. While the south and central regions of the country were inundated, drought halted food production in the north. Every year drought and flooding damage crops and stored food, causing hunger and malnutrition in parts of Mozambique. To keep disaster at bay, the International Institute of Tropical Agriculture (IITA) scientists are working together closely with the people and national agriculture programs of Mozambique to rebuild agricultural production.

After the floods in 2000, seed kits were distributed to families so they could grow food once they resettled. To ensure farmers could plant in growing seasons to come, the IITA and its partners set up a network of nurseries and a system to quickly multiply and distribute healthy, high-yielding pest and disease-resistant cassava and sweet potato varieties to farmers across the country. The work is funded by the United States Agency for International Development (USAID).

“Disaster mitigation should entail more than just responding to current critical situations,” said Maria Andrade, an IITA agronomist. “The goal should be also to prevent impending disasters. Many hands and efforts are needed to join in this worthy cause.”

IITA is working with more than 120 institutions, agencies and community-based organizations in Mozambique to train men and women in cassava and sweet potato production, processing, marketing, and enhancing nutrition. IITA is working to increase food supplies through improving farmer production and commercialization of cassava and sweet potato. IITA and INIA are also promoting orange-fleshed sweet potato rich in beta-carotene to farmers, supermarkets and restaurants. Demand is growing throughout the country for these sweet potato varieties, which help reduce vitamin A deficiency.

Flooding and drought caused great setbacks to the people of Mozambique. As different regions of the country are better prepared to supply each other with food and planting materials in times of crisis, IITA and the people of Mozambique hope the situation will never approach disaster status again. They will continue their partnership to ensure that people throughout the country will have access to nutritious food.



“Disaster mitigation should entail more than just responding to current critical situations. The goal should be also to prevent impending disasters. Many hands and efforts are needed to join in this worthy cause.”

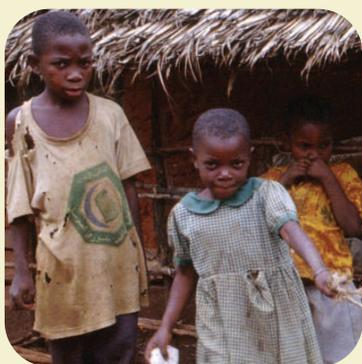
Maria Andrade,
IITA agronomist

IITA
Research to Nourish Africa

International Institute of
Tropical Agriculture (IITA)
Headquarters: Ibadan, Nigeria
www.iita.org



achieving impacts for kenya with research-based poverty maps



The major development agencies represented in Kenya see the new poverty maps as key to monitoring the effectiveness of future pro-poor investments.

The first high-resolution maps and measures of poverty for Kenya were published in October 2003 and made widely available to policymakers across Kenya. The publication, *Geographic Dimensions of Well-Being in Kenya, Volume One: Where Are the Poor? From Districts to Locations*, which describes and summarizes this new information, is the culmination of an innovative two-year research project conducted by the Central Bureau of Statistics, a department of Kenya's Ministry of Planning and National Development, in collaboration with the International Livestock Research Institute (ILRI). The World Bank, the Rockefeller Foundation and World Resources Institute provided technical and financial assistance.

State-of-the-art mapping and statistical modeling employed in this project advanced the understanding of where the poorest of Kenyans are located. Detailed information on household expenditures from a 1997 Kenya Welfare Monitoring Survey were combined with complete geographic coverage provided by a 1999 Kenya Population and Housing Census. This enabled researchers to reliably estimate measures of well-being for very small geographic areas using statistical simulation techniques.

The high-resolution maps are helping government and development partners target their projects for greatest benefits to the poor. The maps are also helping decentralize national resources and support local decision making. When combined with socioeconomic, environ-

mental and other information, such as information on access to and quality of public services and education, the maps provide transparent and evidence-based means for targeting public resources and service delivery.

This research project has already had significant impacts within Kenya. The Central Bureau of Statistics has installed a new Poverty Analysis Unit staffed with researchers and GIS technicians who received training at ILRI through the poverty mapping initiative. These staff are linking with staff of many other government ministries to combine the new poverty data with sector-specific information to better target pro-poor initiatives.

The book is in high demand by government ministers, development organizations, institutions and individuals across Kenya, who have reported they are pleased to see this type of valuable information, formerly considered too sensitive to publicize, being made widely available. The text, tables and maps are all available on a CD-ROM that comes with the book and are on ILRI's website.

The major development agencies represented in Kenya see the new poverty maps as key to monitoring the effectiveness of future pro-poor investments. The new poverty data are also laying the ground for further analyses that will increase our understanding of the factors influencing livelihood strategies and enhancing well-being among the poor, as well as strategies for helping to alleviate poverty in Kenya and other developing nations.

ILRI

International Livestock Research
Institute (ILRI)
Headquarters: Nairobi, Kenya; Addis Ababa,
Ethiopia
www.ilri.org

studying past projects for future successes

Bananas and plantains are a vital source of food and income for millions of smallholder farmers throughout the tropics, especially in East Africa. In an effort to improve the lives of those farmers, the International Plant Genetic Resources Institute (IPGRI) has been working with national agricultural research systems and regional civil society organizations (CSOs) to disseminate improved banana varieties. The Kagera Community Development Project has distributed more than 2.5 million banana suckers to nearly 100,000 households in Kagera District, Tanzania.

A project initiated in 2003 is studying the impact of these efforts and how they may provide a guide for future activities. The project unites the National Agricultural Research Organization (NARO) and Makerere University in Uganda, the Agricultural Research and Development Institute and Sokoine University in Tanzania, IPGRI, IITA, and IFPRI. It is supported by USAID, the Rockefeller Foundation and IFAD.

Designing and conducting effective research can be problematic. Researchers cannot simply look at volumes and prices in the market to assess changes, because farmers grow bananas mainly as

a subsistence crop. The effects of improved varieties on a household's well-being are hard to trace because bananas are perennial crops, grown with other annual and perennial crops as only one contribution to food and income.

Researchers have interviewed 800 households that grow 95 distinct varieties, almost all of them endemic to the East African Highlands. Most households grow approximately nine varieties, but some grow as many as 27. Researchers will use the data to predict the likely adoption of improved banana varieties and to determine what factors influence farmers' choices. Ten students—nine of them African—are working in the project. They are using a Sustainable Livelihoods approach that examines the different dimensions that contribute to poverty alleviation. Importantly, this approach disaggregates different social groups by gender with a view to studying how each is impacted. If a new banana variety is better for brewing beers, will rich or poor households benefit more and will it help women more than men in those households? Crucial answers from such research will help influence banana improvement and improve the lives of poor people.

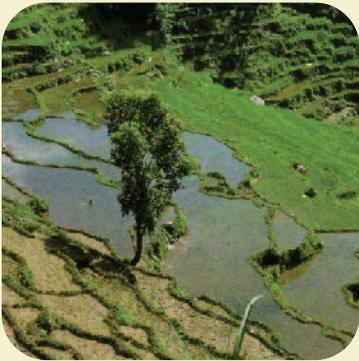


Crucial answers from such research will help influence banana improvement and improve the lives of poor people.



International Plant Genetic Resources Institute (IPGRI)
Headquarters: Maccarese, Rome, Italy
www.ipgri.org

harnessing technology to improve outcomes



IRRI research focused on improving incomes of poor farmers on the troubled southern island of Mindanao through the reintroduction of traditional rice varieties that command premium prices in the marketplace.

The Philippines, which hosts the International Rice Research Institute (IRRI) and is one of its most important partners, faces major challenges, such as a fast-growing population, high incidence of poverty, and dependency on rice imports for food security.

In 2003, one of the most significant areas of IRRI research focused on improving incomes of poor farmers on the troubled southern island of Mindanao through the reintroduction of traditional rice varieties that command premium prices in the marketplace.

In an on-farm, participatory testing program, about 50 farmers tried 20 improved and traditional upland varieties. Many farmers rated the two IRRI-supplied traditional upland rice varieties, Azucena and Dinorado, very highly and wished to plant the same varieties in their next cropping cycle. The farmers had lost most of their own seed for these varieties as a result of shifting cultivation patterns, out of upland rice into maize. The remaining seed was badly mixed with other varieties and rendered unusable.

Hybrid rice is another income-enhancing technology developed by IRRI. Local rice farmers are now using varieties such as Mestizo 1 and 3, Bigante, Magilas and Rizalina, which were all derived from IRRI-bred parental lines.

In 2003, Filipino farmers cultivated these hybrids on nearly 80,000 hectares, with most of the area planted with Mestizo. Just as important as helping farmers improve their incomes, the higher yields also help the Philippine nation in achieving rice self-sufficiency, a crucial step on the road to national food security.

Collaborating closely with the Philippine Rice Research Institute (PhilRice), the National Irrigation Authority (NIA) and the Department of Agriculture (DA), IRRI has also achieved success in working with farmers to develop new strategies to reduce water use by growing aerobic rice.

During 2003, initial field experiments with aerobic rice varieties for the tropics that had produced yields of 4-6 t/ha and water savings of around 50 percent compared with lowland rice were expanded to farmers' fields with the same good results. IRRI uses both high-technology and indigenous technologies in its aerobic rice initiative. Indigenous technologies include the lithao (a wooden implement for sowing seeds) and the sagad (a wooden spike-toothed harrow) for crop establishment and improved weed control; high-technology options include direct machine seeding and laser land leveling.

IRRI

International Rice Research
Institute (IRRI)
Headquarters: Los Banos, Philippines
www.irri.org

bringing programs closer to the field

The year 2003 marked a major milestone in the evolution of the International Service for National Agricultural Research (ISNAR). The CGIAR formally approved the recommendations of the ISNAR Restructuring Team (IRT) and requested the Boards of ISNAR and IFPRI to transfer governance and relocate ISNAR programs under IFPRI governance.

The clear and urgent rationale for change, identified by the IRT and endorsed by the Group, is directed toward bringing ISNAR programs closer to the field for achieving greater development impacts.

Under the new arrangements, ISNAR activities are being restructured as a new ISNAR program under IFPRI governance. The new program, which will remain an identifiable entity within IFPRI, will be located on the ILRI campus in Addis Ababa, Ethiopia.

Relocating the new ISNAR Program in Sub-Saharan Africa brings it into closer contact with its

main target region. The new Program will work in partnership with national and regional organizations and the CGIAR Centers. The primary theme of the Program will be to produce new knowledge on institutional change that enhances the impact of agricultural research. The secondary theme will be to enhance the performance of agricultural research institutions by strengthening their organization and management.

The new ISNAR program will focus on Africa while maintaining its global mandate and remaining active in Latin America and the Caribbean, Asia, and the Central West Asia and North Africa regions.

An advisory committee was established to assist in the smooth transition and guide the new program. A program of extensive consultations with partners representing national programs, academia, civil society organizations and the investor community is being conducted.



The clear and urgent rationale for change is directed toward bringing ISNAR programs closer to the field for achieving greater development impacts.

ISNAR

International Service for National
Agricultural Research (ISNAR)
Headquarters: The Hague, Netherlands
www.isnar.cgiar.org

achieving impacts through partnerships



In 2003, the International Water Management Institute (IWMI) achieved a number of impacts through collaborative research with a wide range of national program partners, research networks and consortia. It also facilitated the formation of several communities of practice for better knowledge-sharing through web-based and face-to-face interactions.

IWMI adopted a partnership approach to delineation of problems and working toward solutions. IWMI researchers worked extensively with the South African Department of Water Affairs and Forestry, bringing global knowledge to bear on water issues. These efforts were rewarded when the South Africa Yearbook 2003 acknowledged IWMI's efforts, noting that "A fruitful collaboration has been initiated with the International Water Management Institute's regional office, for cross-referencing with international practices and capacity building of the Department's personnel."

The Hyderabad Declaration on Wastewater Use in Agriculture was the outcome of a workshop held in 2002 in Hyderabad, India, sponsored by IWMI and the International Development Research Centre (IDRC). Several NARS from Africa, Asia and the Middle East participated in the drafting of the Declaration, which has been translated into three languages and disseminated widely. The underlying principles grew out of IWMI research, which is helping inform public health guidelines issued by the World Health Organization and the United States Environmental Protection Agency/United States Agency for International Development (USEPA/USAID) for the water sector.

IWMI researchers benefit from the knowledge of rural communities across South Asia, many of whom have developed practical ways to manage scarce water resources. Through an active program of knowledge-sharing, IWMI researchers are working with local nongovernmental organizations in India and Nepal (e.g., PRADAN, DHAN Foundation, Seva Mandir, RITI and IDE) and academic institutions such as Hyderabad-based Osmania University. These efforts identified and evaluated six community-based solutions that have significantly improved water availability and people's lives. A knowledge-sharing initiative supported by DFID, UK, is helping IWMI and partners to promote the uptake of best practices to other areas.

In Central Asia sustainable management of water resources is vital. IWMI researchers, working with water specialists at the Scientific Information Center of the Interstate Commission for Water Coordination, have found approaches based on local experience, social mobilization and the creation of Water User Associations to be particularly effective in solving problems and promoting cooperation among users.

IWMI and researchers from Khon Kaen University, together with farmer networks in Southeast Asia, have focused on the use of low-cost traditional practices and sustainable technologies to increase soil and water productivity. Farmer field trials on the use of betonite clays to reverse soil degradation in North East Thailand have demonstrated yield increases of 50 percent or more for high-value fruits and grains with less need for chemical fertilizers and pesticides. Such practices benefit both farmers and their environments.



International Water Management
Institute (IWMI)
Headquarters: Battaramulla, Sri Lanka
www.iwmi.cgiar.org

putting rice on the african political agenda

The year 2003 was marked by widespread recognition by African governments of the achievements of The Africa Rice Center.

Calls for accelerating the dissemination of New Rices for Africa (NERICAs) were high on the development agenda at the Third Tokyo International Conference on African Development (TICAD III) held in September 2003 and attended by about 25 African Heads of State.

Voicing the opinion of many leaders at the TICAD summit, President Thabo Mbeki of South Africa urged that dissemination of NERICAs be extended “to other parts of the continent in urgent need.” The New Partnership for Africa’s Development (NEPAD) identified NERICAs as “one of Africa’s best practices worth upscaling.”

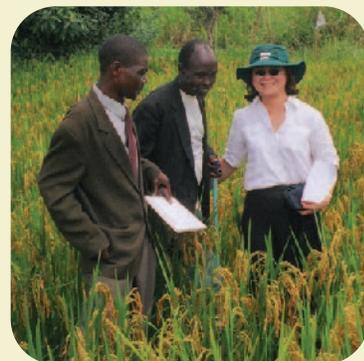
NERICA dissemination efforts also received a tremendous boost from the African Development Bank, which approved \$31 million in loans and grants in September 2003 to support the dissemination of NERICA varieties in seven West African countries.

Recognition of The Africa Rice Center’s technologies was not limited to the NERICAs. On June 30, 2003, President Abdoulaye Wade of Senegal conferred the Grand Prix du Président de la République pour les Sciences—Senegal’s highest award for science and technology—on the team led by The Africa Rice Center for the development and promotion of the ASI rice thresher.

The ASI thresher is saving women and children hours of backbreaking operations of rice threshing and cleaning in the irrigated rice systems of West Africa. It has become the most widely used rice thresher in Senegal. ASI, which is based on a prototype from IRRI, has undergone several adaptations to match local conditions. It was jointly developed by the Institut Sénégalais de Recherches Agricoles (ISRA), the Société d’aménagement et d’exploitation des terres du delta du fleuve Sénégal (SAED), The Africa Rice Center, local manufacturers and farmers.

ASI’s popularity is growing rapidly, and it is spreading to other countries in the region. The Africa Rice Center is collaborating with partners in Mali, Mauritania, Ghana and Côte d’Ivoire to develop appropriate prototypes.

A comprehensive strategy for the revitalization of the rice sector in Nigeria was presented to the Nigerian Minister of Agriculture in August 2003. The strategy recommends that the Nigerian rice sector become competitive by adopting a comprehensive approach to focus on quality and improve production, processing and marketing activities. The strategy was based on the findings of a USAID-funded project conducted by The Africa Rice Center, the Nigerian Institute for Social and Economic Research (NISER) and the National Cereals Research Institute (NCRI).



**NEPAD identified NERICAs
as “one of Africa’s best
practices worth upscaling.”**



West Africa Rice Development
Association (WARDA)
The Africa Rice Center
Headquarters: Bouaké, Côte d’Ivoire
www.warda.org

reducing poverty in rural rwanda with an innovative dairy project



Zero grazing dairy for small farmers in rural Rwanda uses agroforestry to feed pure-bred cows that produce up to seven times more milk than indigenous livestock.

It is a challenge to start a large-scale dairy project with cows in a mountainous country with virtually no grazing opportunities. Yet Christophe Zaongo, a scientist with World Agroforestry Centre, and David Kagoro from the Rwanda Agroforestry Network (RAFNET) have succeeded in doing just that.

Their innovative proposal, Zero Grazing Dairy for Small Farmers in Rural Rwanda, uses agroforestry to feed pure-bred cows that produce up to seven times more milk than indigenous livestock. The World Bank selected the proposal from among the 2,700 submitted to receive the 2003 Development Marketplace Award.

The zero grazing dairy project is a labor-intensive approach. Farmers only receive pure-bred cows after they have proven that they can care for the precious animals, including building cowsheds and providing sufficient fodder. In addition to elephant grass, farmers need to plant fodder trees like Calliandra to provide improved nutrition for the cows. Hedges of fodder trees can be grown on steep hills, which create progressive terraces—the vegetation reduces erosion and helps create the distinctive terraces common in Rwanda.

“Rwanda is the land of thousand hills,” said David Kagoro. “It is necessary to change to sustainable farming practices to deal effectively with severe soil erosion. There is not enough land for agriculture. Agroforestry practices provide a solution because they require less land and can be applied on steep hills.”

In addition to protecting farmland and generating income for poor farmers, the zero grazing dairy project has another significant benefit. In a country recovering from genocide that killed more than 800,000 people, many farmers cannot afford to buy cows. Accordingly, the project supplies the cows on loan; farmers do not have to pay for the cows if they give up the first offspring of the cows to the project. These heifers are given to neighboring farmers, helping to contribute to peace and reconciliation within rural Rwandan communities.

In addition to RAFNET, the zero grazing project receives support from the Rwandan Ministries of Agriculture and Environment.



World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

World Agroforestry Centre (ICRAF)
Headquarters: Nairobi, Kenya
www.worldagroforestrycentre.org

mobilizing communities to sustain fisheries

In Bangladesh, WorldFish Center is using a community-based approach for reducing poverty and sustaining natural resources in partnership with the Department of Fisheries and civil society organizations. Impacts include enhanced incomes; access to credit, training and social services; long-term rights over fisheries; and expertise in managing these fisheries on a more sustainable basis. Beneficiaries are 109,940 households from poor inland fishing communities. The project promotes policies and institutional changes for equitable and sustainable management of inland fisheries.

In Cambodia, inland fisheries are indispensable to the food security, income and employment of its fast-growing population. However, decision-making and institutional actions for ensuring the sustainability of this vital resource are hampered by weak policy frameworks and inadequate basic data. With the establishment of the Inland Fisheries Research and Development Institute (IFReDI), WorldFish Center has pioneered a new approach to capacity-building through on-the-job training and "learning by doing." This collaboration has already resulted in policy dialogue, research prioritization, initiation of vital bio-ecological and socio-economic studies, and mapping of technology transfer and knowledge dissemination strategies.

The Fish Demand and Supply project, with support from the Asian Development Bank and partners, is

a collaborative effort involving more than 30 NARS from nine major fish-producing countries in Asia. The project has analyzed fish supply and demand by species group, developed technological and policy options including a profile of major stakeholders, and formulated national fisheries action plans for improving the benefits to poor fishers, fish farmers and fish consumers. The action plans are being incorporated into development plans of the participating countries.

Stagnating catch from the local rivers and a declining catch from lakes have resulted in a high demand for fresh fish in Malawi. In the western part of Zomba district, integrated agriculture-aquaculture (IAA) technology developed by WorldFish Center in collaboration with Malawi's National Aquaculture Center and farmers is being used to develop 400 new fish ponds with facilitation from World Vision and fish farmers' clubs. Technical support is provided by the Department of Fisheries, Malawi. In a six-month growing period, a standard family-sized 200-square-meter pond produces marketable fish with a value of \$25.

In the Pacific, WorldFish and partners are using environmentally friendly aquaculture to create opportunities for new livelihoods. With coral reef fish and shrimp in high demand by the aquarium trade, new methods for catching and rearing the post larvae has removed the need to collect larger specimens from the reef itself.

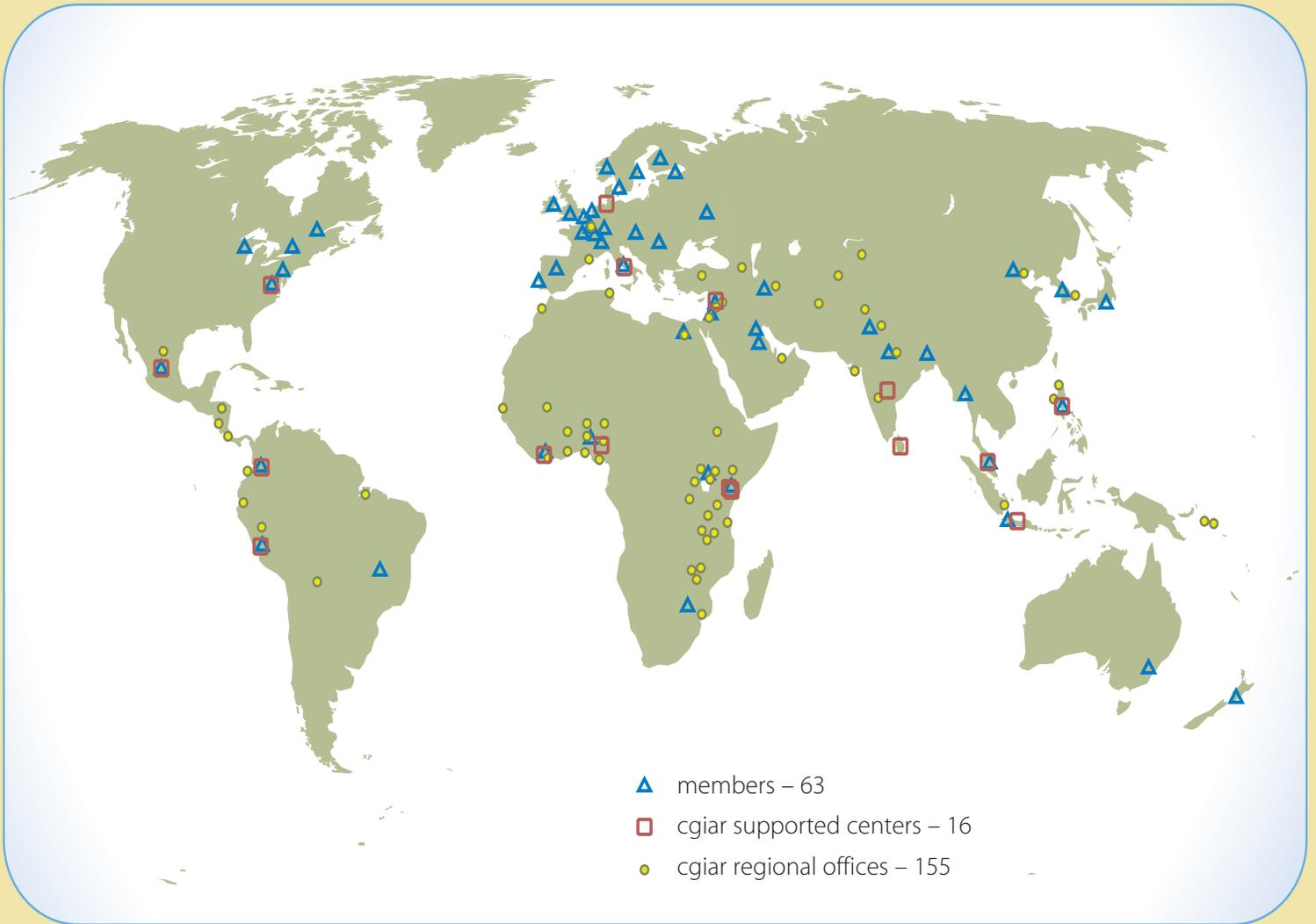


WorldFish Center has pioneered a new approach to capacity-building through on-the-job training and "learning by doing."

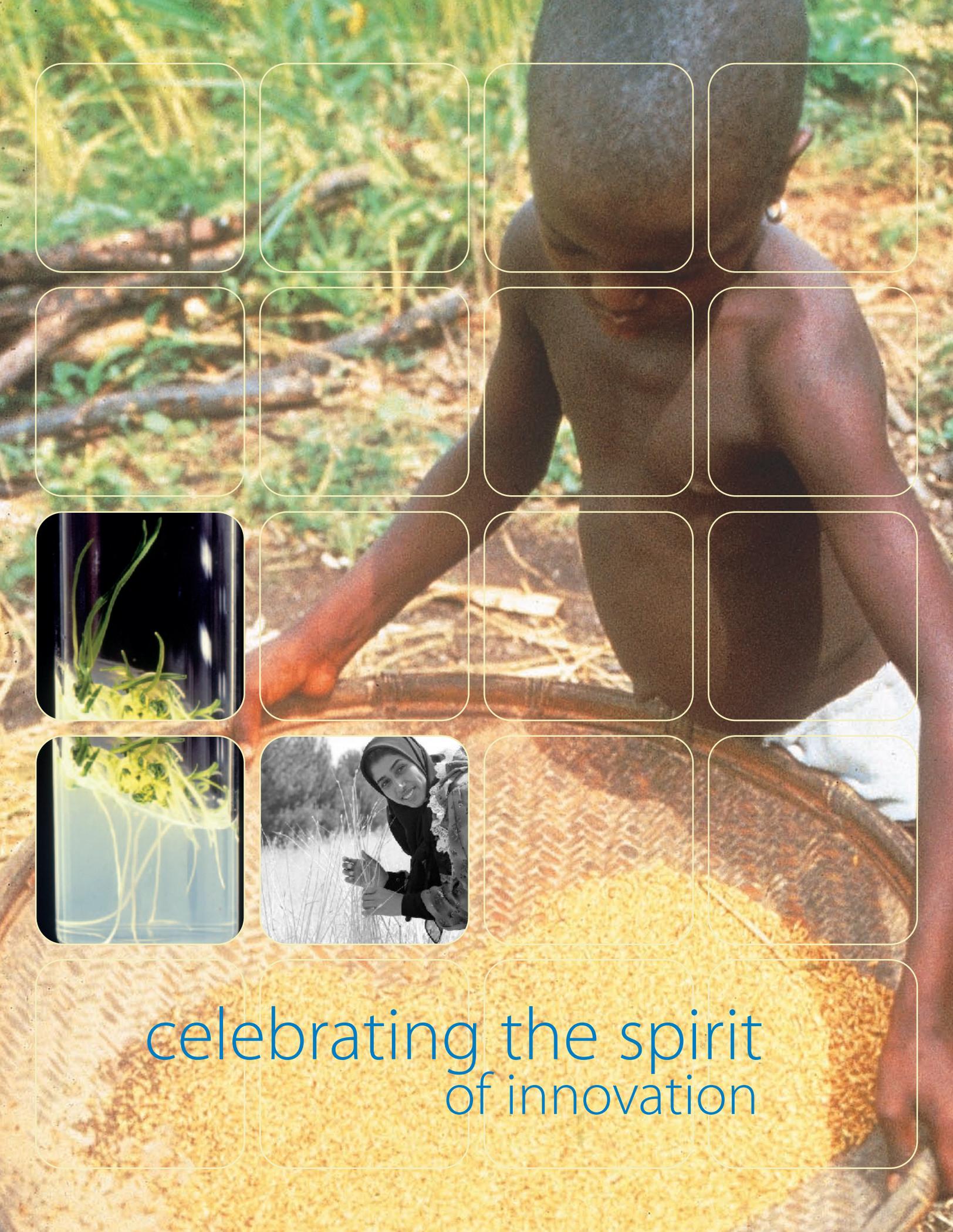


WorldFish Center
Headquarters: Penang, Malaysia
www.worldfishcenter.org

the global cgiar



Placement markers are approximate and indicate city locations, not worldwide offices.



celebrating the spirit
of innovation

implementing challenge programs

Challenge Programs elevate the significance of CGIAR research by aligning it more clearly with the Millennium Development Goals.



The evolutionary approach to reform across the CGIAR continues to produce new ideas and new ways of working. Highlighted here are several examples of these new approaches: the Challenge Programs (CP), with an emphasis on the big picture global issues and broad partnerships; our investment in information and communication technologies for improved knowledge management; and a renewed commitment to performance measurement to ensure we achieve maximum impact. They are all examples of the CGIAR's ongoing commitment to continuous improvement.

CPs are time-bound, independently governed programs of high-impact research that target the CGIAR goals in relation to complex issues of overwhelming global or regional significance. CPs require partnerships among a wide range of institutions to deliver their products for development impact. In addition to opening the CGIAR system to broader research partnerships and attracting additional funds, CPs elevate the significance of CGIAR research by aligning it more clearly with the Millennium Development Goals.

Three CPs are being implemented on a pilot basis:

- Water and Food (www.waterforfood.org) has completed its inception phase. A thematic research agenda has been developed, basin priorities have been identified, and a project portfolio of 50 projects has been selected

through a competitive grants mechanism. Of these, 20 projects have received funding. The CPs project portfolio covers five themes across nine priority basins. In 2003, approximately \$6 million was received as funding from Denmark, Germany, Netherlands, Norway, Sweden, Switzerland and the World Bank.

- HarvestPlus (formerly called "biofortification," www.harvestplus.org) also completed its inception phase. Organizational activities in 2003 included phase one crop and disciplinary meetings and fundraising. A small number of research contracts were signed and covered by modest funding. Initial funding support for 2003 activities (\$3 million) was contributed by the World Bank. A major highlight was a \$25 million grant from the Bill and Melinda Gates Foundation spread over a period of four years—the first tranche of \$7 million was received in September 2003.
- Generation CP (formerly known as "Unlocking Genetic Diversity in Crops for the Resource Poor," www.generationcp.org) will finish the inception phase by mid-2004. Initial activities focused on defining priorities under each of five subprograms, formulating a first-year work plan and organizing the governance and management bodies. Initial funding of \$8.4 million was provided by Austria, the European Commission, Sweden, and the World Bank.

More detailed information is available on each CP's website.

optimizing impacts through improved information and knowledge management

Another example of the CGIAR's commitment to implementing new ways of working is seen in the Information and Communications Technology and Knowledge Management program (ICT-KM). This new program is using a multifaceted approach to improve access to information, scientific data, and collaboration tools across the CGIAR System. The program goals are twofold:

- To transform the way CGIAR works, incorporating new practices to preserve, produce, and improve access to the agricultural global public goods needed by poor people in developing countries
- To serve as a leading knowledge broker, bringing together all actors in an open, inclusive community for research and development in global public goods

Information and Communications Technology

Important milestones were attained in 2003:

- Finalization of the new Microsoft purchasing agreement that resulted in a System-wide savings of approximately \$1 million
- Launch of project management software that can satisfy the requirements of a number of centers
- Streamlining of the CGNET contract that maintains services while eliminating unnecessary items
- Conclusion of a study and the subsequent recommendations for preferred collaboration software
- Implementation of a new standard e-mail naming convention that allows easier identification of Members

- Implementation of a new software platform that will be the foundation of the CGIAR seamless network
- Establishment of ICT-KM Advisory Group to assist in the identification of priorities and to support the preparation and implementation of action plans
- Completion of the design of the ICT-KM Investment Plan 2004 and the presentation of the plan to an external review panel

Knowledge Management

Among the significant accomplishments in knowledge management in 2003 were the following:

- Launch of Infofinder, a one-stop shop for electronic information available within the Centers, the Secretariat and Food and Agricultural Organization (FAO)
- Substantial savings realized by joint subscriptions from five major publishers and joint licenses for accessing electronic journals, the consortium-style subscription to CAB abstracts, and the installation of a system to facilitate the delivery of electronic versions of documents among libraries
- Finalization of the CGIAR library gateway to open the wealth of information available in the System to partners and constituents and pave the way for a CGIAR Virtual Library.

"Collaborate, create, and communicate"—these are the elements of the ICT-KM Program motto. By expanding the CGIAR's opportunities to work together, to communicate and to share knowledge, we will substantially enhance our ability to serve poor people in developing countries.



developing a new approach to performance measurement in the CGIAR



The Working Group has begun exploring performance management models and approaches used at similar science-based organizations in developing and industrialized countries.

In the interests of both achieving and demonstrating continuous improvement, a Working Group was tasked to develop a new performance measurement system. Led by Colombia and the World Bank, the Working Group has begun exploring performance management models and approaches used at similar science-based organizations in developing and industrialized countries. The CGIAR agreed with the Working Group's recommendation that a performance management model should be developed using indicators that reflect results achieved by the Center, as well as the Center's potential to perform well in the future.

The Working Group is developing the sets of indicators to be tested. These cover eight broad areas, four on results and four on the potential to perform. Indicators that reflect a Center's outputs, outcomes, and impacts and the perceptions of stakeholders constitute the set on results. The potential to perform set includes quality and skills

mix of staff, quality and relevance of programs, governance and institutional health, and financial health.

The performance management system will rely on self-reporting by the Centers and generate performance data on an annual or biannual basis. It is intended to serve as a tool for performance management by the Centers, demonstrating accountability and helping with benchmarking. Investors are not expected to use performance management indicators as the sole decision tool for resource allocation decisions.

Benchmarks have been established during the test year of 2003, and the development of the performance management system is expected to be completed by the end of 2004. The system is a work in progress and approaches will continue to be refined. Full implementation is expected to begin in 2005.

system office is up and running

In 2003, the System Office comprising nine units (box 1) began operations as a virtual entity according to its first Integrated Business Plan.

As a virtual organization, the System Office brings greater coherence to the nine central support units, to enhance overall performance. The existing units that constitute the System Office provide a variety of services to Members and Centers—as well as to stakeholders and interested partners. These services fall into four broad functional categories: (1) Strategic Planning and Development, (2) Monitoring and Evaluation, (3) Public Awareness and Resource Mobilization, and (4) Management Services.

Some of the key services provided by the System Office in 2003 included the following:

- Support to CGIAR governance organs
- Support to CGIAR reform program
- Support to monitoring and evaluation of Center program and management
- Strategic communication and resource mobilization
- Development of a systemwide ICT-KM strategy aimed to foster global virtual team effort across the Centers and partners, to improve effectiveness and efficiencies, to reduce duplication, to improve decision making and to nurture communities of practice and teamwork
- Diagnosis and strengthening of systemwide gender and diversity issues
- Provision of Center-specific and systemwide audit and advisory services
- Support to Center intellectual property management capacity

Box 1.

System Office Units in 2003

1. Central Advisory Service – Intellectual Property (CAS-IP)
2. CGIAR Secretariat
3. Chief Information Officer (CIO)
4. Executive Secretariat of the Center Director Committee
5. Future Harvest Foundation (FHF)
6. Gender and Diversity Program (G&D)
7. Internal Audit Unit (IAU)
8. Science Council Secretariat
9. Strategic Advisory Service on Human Resources (SAS-HR)



winners
in 2003

recognizing excellence in science and communications with cgiar awards

Scientific excellence is a hallmark of high-performing research organizations. The CGIAR's founders clearly had this in mind when they tasked the CGIAR to mobilize the best of science and technology for the benefit of poor farmers in developing countries. Quality and relevant science continues to be the driving force that enables the CGIAR System to thrive and fulfill its mission.

The 2003 Awards were conferred at the Annual General Meeting held at the United Nations Office in Nairobi, Kenya. The award ceremony was honored by the participation of Hon. Moody Awori, Vice President of the Republic of Kenya, who joined Ian Johnson, CGIAR Chairman and presented the following awards:

■ **Outstanding Scientist:** Abdul Mujeeb Kazi of CIMMYT received this award for generating and making available new genetic diversity for wheat improvement. He has created numerous complex combinations in the wheat family, including interspecific hybrids across the wheat genomes, fertile amphiploids, and self-fertile backcross-1 germplasm. This wealth of genetic variation has been widely distributed and remains available to the global scientific community.

■ **Promising Young Scientist:** Jonathan H. Crouch of ICRISAT was presented this award for his leadership in developing the upstream biotechnology and genetic enhancement program in ICRISAT. He championed holistic multidisciplinary approaches to resolving previously intractable problems through multisector biotechnology-based partnership building. He was instrumental in establishing the Applied Genomics Laboratory at the Center.

■ **Outstanding Partnership:** Vitamin A for Africa (VITAA) coordinated by CIP was chosen because it brings together nutritionists, health experts and agricultural scientists to help address the Vitamin A deficiency problem in Sub-Saharan Africa. This partnership of 44 local and international development institutions/agencies works for the development and promotion of orange-fleshed, high-beta-carotene sweet potato varieties to help reduce Vitamin A deficiency in Ethiopia, Ghana, Kenya, Mozambique, South Africa, Tanzania and Uganda.

■ **Outstanding Scientific Support Team:** The support staff from the IRRI Genetic Resources Center received the award in recognition of the team's contribution to effective and efficient operation of IRRI's rice genebank, one of the largest in the network of genebanks supported by the CGIAR. The national support team is primarily responsible for storing, testing, multiplying, characterizing, distributing and documenting seed samples. In addition to providing support, some staff members play key roles in the conduct of research on conservation and utilization of rice genetic resources.

■ **Outstanding Scientific Article:** Two scientific papers were cowinners of this award.

■ Dietary aflatoxin exposure and impaired growth in young children from Benin and Togo: Cross-sectional study by Y.Y. Gong, K. Cardwell, A. Hounsa, S. Egal, P.C. Turner, A. J. Hall and C.P. Wild, was published in the British Medical Journal. Three of the authors (Cardwell, Hounsa and Egal) are staff of IITA. The study revealed a striking



Recipients of CGIAR Science Awards 2003

Top
Standing (L to R): Rejab Ssetyabula, farmer, Outstanding Partnership Award; Y.Y. Gong, Outstanding Scientific Article; Olivier Hanotte, Outstanding Scientific Article; Jowelina Ssekiyanja, farmer, Outstanding Partnership Award.

Seated (L to R): Regina Kapina, VITAA Partnership Coordinator, Outstanding Partnership Award; Abdul Mujeeb Kazi, Outstanding Scientist.

Bottom
Standing (L to R): Jonathan H. Crouch, Promising Young Scientist; Salome Gamelenga, farmer, Outstanding Partnership Award; Manuel Lantin, CGIAR Secretariat.

Seated (L to R): Flora de Guzman, Outstanding Scientific Support Award; Fina Opi, Chair, VITAA Steering Committee, Outstanding Partnership Award.

Quality and relevant science continues to be the driving force that enables the CGIAR System to thrive and fulfill its mission.



association between exposure to aflatoxin in children (from villages of Benin and Togo) and standard indicators of malnutrition (stunted growth and underweight condition). The research implication is to address the aflatoxin contamination problem in stored food grains (particularly maize and ground nuts) in warm and humid areas like those in West Africa.

- African pastoralism: Genetic imprints of origins and migrations by Olivier Hanotte, Daniel G. Bradley, Joel W. Ochieng, Yasmin Verjee, Emmeline W. Hill and J. Edward O. Rege, was published in Science. Four of the authors (Hanotte, Ochieng, Verjee and Rege) are staff of ILRI. This is the first continent-wide study of the genetic diversity of cattle in Africa. A product of seven years of

research, the paper represents a landmark in work to characterize, conserve and better use indigenous animal genetic resources for the benefit of the poor in the continent.

Communication Awards

- Outstanding Journalism Award: Pallava Bagla, an Indian journalist, received this award for his article “Drought Exposes Cracks in India’s Monsoon Model,” which was published in Science in 2002.
- Outstanding Communications Award: The WorldFish Center won the award for the Fish for All Campaign. The campaign was instrumental in bringing national and global attention to fish as a major contributor to the food needs of one billion of the world’s poor and to the livelihood of millions of people in developing countries.

the spirit of innovation

The First Innovation Marketplace '03 was launched at the Annual General Meeting 2003 in Nairobi to promote, expand and strengthen relationships with civil society while catalyzing innovation across the CGIAR system.

The winners of the Inaugural Innovation Marketplace '03 are as follows:

■ **Nyine Bithawa and Anke Weisheit of Rukarwe Partnership Workshop for Rural Development, in partnership with World Agroforestry Centre, received the Best Innovative Partnership Program** for a program that is strengthening the capacity of herbalists in conservation and use of medicinal species. The prize carried a cash award of \$15,000 and a scroll. The judges found that the program adopts an innovative approach that enhances prosperity, encourages diversification, fosters systems sustainability, addresses the critical issue of genetic resources conservation, and contributes to improvements in health and livelihood.

■ **Wonwossen Diresse Bezabih of Tikurso Innovative Farmers Group received the People's Choice Award.** The prize carried a cash award of \$5,000 and a scroll.

These two winners were chosen from 10 finalists, who were selected from 45 entries. The first round of evaluation was conducted by Milagre Nuvunga of the Ford Foundation, Davinder Lamba of Mazingira Institute (a local nongovernmental organization) and Erica Kanja, Innovation Marketplace Event Manager.

The final round of evaluation was conducted by Luis Arango of CORPOICA (Colombian Corporation for Agricultural Research), Denis Despereaux (France), Mangala Rai (India) and Franklin Moore (United States).



The Innovation Marketplace catalyzes innovation across the CGIAR System.



executive summary
of the 2003 CGIAR
financial results

a collaboration of CIAT and CGIAR Secretariat



Costa Rica
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compliance with financial guidelines

The Centers are autonomous institutions governed by their respective boards of trustees. To ensure transparency and consistency in financial practices and the presentation of financial information, the Centers are required to follow financial guidelines issued by the CGIAR Secretariat. Developed with the input of Center financial personnel and external financial experts, these guidelines aim to bring the CGIAR's financial practices into conformity with those generally accepted worldwide.

As part of the annual review of the substantive financial performance, a peer group of finance directors has reviewed the 2003 externally audited financial statements of the Centers to assess their compliance with CGIAR accounting policy and reporting guidelines and validate the analysis underpinning the CGIAR financial report. The peer review also made a number of recommendations to promote best practice in fiduciary management and financial reporting.

In view of developments in accounting and corporate governance worldwide during the last few years, the CGIAR finance professionals and the CGIAR Secretariat launched a major effort to update the CGIAR Accounting Guidelines to align them more closely with International Accounting Standards (IAS). This exercise was completed at year-end, and the new guidelines will be mandatory for the 2004 financial statements. Another mechanism to strengthen accountability within the CGIAR is an initiative to improve the internal audit within the System by providing strategic internal audit advice and services to the Centers. The Internal Audit initiative is now part of the System Office. In 2003, 10 Centers were participating in the initiative.

executive summary of the 2003 cgjar financial results

Members of the Consultative Group on International Agricultural Research (CGIAR) support Centers and programs of their choice, and each Center receives and spends funds. The 2003 financial outcome¹ discussed here is an aggregation of the audited financial statements of the 16 Centers supported by the CGIAR and includes financial information on Challenge Programs reported in the Center accounts. A more detailed financial report including time series tables and charts is contained on the enclosed compact disc and posted on the CGIAR website (www.cgiar.org).

The review and aggregation of the financial statements have been done in the context of fiduciary management and reporting standards approved by the CGIAR to guide the Centers in these areas. Additional information on financial compliance is contained in the box on page 46.

cgjar's 2003 financial goals

As in past years, the CGIAR's financial goals in 2003 were to mobilize sufficient resources to enable it to implement

its work program for the year and to maintain its strong financial position. The financial targets for 2003 approved at the CGIAR Annual General Meeting 2002 were as follows:

- To implement an approved work program costing \$376 million, of which \$358 million was forecast from Members, \$12 million as Center income and a planned deficit of \$6 million financed by Center reserves
- To maintain at least the same levels of financial position and operating ratios as in the previous year.

overall financial outcome at the centers

The overall 2003 result shows that the CGIAR surpassed its financial targets. Total expenditures were \$395 million, 5 percent above the approved target. Member funding (grant and contract income) amounted to \$381 million, and Center income was \$17 million, resulting in savings of approximately \$3 million. Overall, the CGIAR's financial position grew stronger at the end of the year as confirmed by both short-term and long-term financial indicators. Highlights of the System's 2003 financial performance are shown in table 1, with comparative information for the previous four years.

Table 1 CGIAR Program and Resource Highlights, 1999 - 2003¹

ACTUAL	1999	2000	2001	2002	2003
Center income (millions of U.S. dollars)					
Agenda funding	330	331	337	357	381
<i>(of which percent unrestricted)</i>	54%	50%	43%	44%	44%
Center earned income	13	14	16	14	17
Total revenue	342	345	353	371	398
Member funding (millions of U.S. dollars)					
Europe	126	128	131	147	161
Pacific Rim	48	43	37	25	24
North America	52	54	57	66	76
Developing countries	15	14	14	13	11
International and regional organizations	68	66	67	72	72
Foundations	6	7	9	9	10
Non-members	15	19	23	26	27
Total	330	331	337	357	381
Top three contributors	World Bank Japan United States	World Bank United States Japan	United States World Bank Japan	United States World Bank United Kingdom	United States World Bank European Commission
Staffing (number)					
Internationally recruited staff	982	1,017	1,012	1,060	1,065
Support staff	7,712	7,649	7,489	6,699	6,837
Agenda program expenditures (percent) ²					
Germplasm Improvement	18%	18%	18%	18%	17%
Germplasm Collection	10%	10%	10%	10%	11%
Sustainable Production	36%	35%	36%	35%	34%
Policy	15%	15%	14%	15%	16%
Enhancing NARS	21%	22%	22%	22%	22%
Total (millions of U.S. dollars)	349	339	355	381 ³	395 ³
Object expenditures (percent)					
Personnel	50%	49%	49%	49%	46%
Supplies/services	38%	39%	40%	40%	43%
Travel	7%	7%	7%	7%	7%
Depreciation	5%	5%	4%	4%	4%
Regional expenditures (percent)					
Sub-Saharan Africa (SSA)	42%	42%	43%	43%	45%
Asia	32%	32%	31%	33%	32%
Latin America and the Caribbean (LAC)	17%	17%	16%	15%	14%
Central and West Asia and North Africa (CWANA)	9%	9%	9%	9%	9%
Result of Operations (System Level)	(6.4)	6.6	(1.7)	(9.6)	3.2
Center financial information					
Net Assets excluding fixed assets (millions of U.S. dollars)	90	105	100	98	130
Net Assets (days expenditures)	99	119	107	100	127
Liquidity indicator					
Working capital (days expenditure)	122	112	129	125	151
Current ratio	1.6	1.7	1.9	1.8	1.8
Sustainability indicator					
Net assets excluding fixed assets / revenue (percent)	26%	30%	28%	26%	33%
Fixed asset indicators					
Capital expenditure (millions of U.S. dollars)	17.9	14.9	15.9	9.3	9.7
Capital expenditure / depreciation (percent)	100%	93%	104%	65%	63%

1 Some information has been restated for clarification purposes.

2 Starting in 2003, the research agenda is presented in terms of outputs.

3 Includes System Office, CGIAR Committees, and disbursements for FARA and Millennium Ecosystem Assessment.

the cgiar funding

The year 2003 showed a further increase in aggregate financing for the System. CGIAR funding totaled \$381 million in 2003 compared with \$357 million in 2002, an increase of \$24 million (7 percent).

Fifty-five of the 62 CGIAR Members² provided \$354 million (up from \$332 million in 2002). The remaining \$27 million came from a broad range of sources, including multidonor projects, nonmember foundations and developing countries. Table 2 lists funding for 1972-2003 by Member.

As shown in figure 1, the increase in funding in 2003 came primarily from two Member groups: North America increased by \$10.8 million (16 percent) and contributions received from Europe in US dollar terms were higher by \$13.7 million (9 percent). Many of the European Members provide their funding in Euros and other national currencies, which then are converted into U.S. dollars by Centers. In 2003 these currencies appreciated significantly against the dollar. In addition, multidonors and non-CGIAR members increased their funding by \$2.2 million (9 percent). The Pacific Rim decreased by \$2 million (8 percent) and the developing countries by \$0.6 million (5 percent). Funding from foundations and international and regional organizations were stable.

The increase in funding from Europe came from Sweden (\$2.9 million or 27 percent), European Commission (\$2.7 million or 11 percent), Netherlands (\$2.2 million or 13 percent), the United Kingdom (\$1.6 million or 6 percent), Belgium (\$1.5 million or 31 percent), Germany (\$1.1 million or 10 percent) and Spain (\$1 million or 77 percent). In North America virtually all of the increase came from Canada (\$10.2 million or 95 percent). The decrease in funding from the Pacific Rim was due largely to a decrease in the Japanese funding (totaling approximately \$2.1 million or 12 percent). Funding by Australia and New Zealand were stable at their 2002 levels.

Funding from developing country Members decreased from \$12.7 million in 2002 to \$12.2 million in 2003. Colombia maintained its position as the largest supporter among developing countries with \$2.3 million in support.

The top 13 supporters of the CGIAR in 2003 provided about three-quarters of the funding for the research agenda, the same proportion as in 2001 and 2002. The United States, providing \$55.5 million, was the single largest supporter, followed by the World Bank (\$50 million) and the European Commission (\$27.2 million). To compare the top three supporters in 2003 with 2002, the United States and World Bank held the same rankings in that year, but the European Commission ranked fourth.

Figure 1 **CGIAR Funding**
(millions of U.S. dollars)

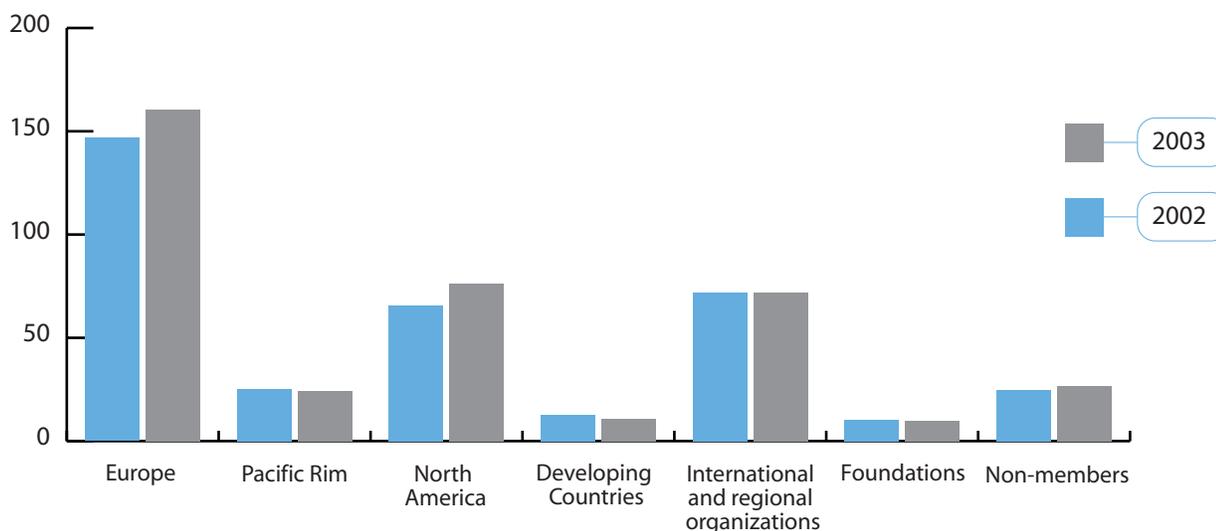


Table 2 **CGIAR Funding to the Research Agenda by Member Group, 1972 – 2003**
(millions of U.S. dollars)

MEMBERS	1972–1998	1999	2000	2001	2002	2003	TOTAL
Europe							
Austria	17.2	2.3	1.8	2.1	0.2	0.8	24.4
Belgium	72.0	6.8	4.7	4.5	4.9	6.4	99.3
Denmark	108.5	14.0	11.0	10.6	10.2	9.1	163.4
European Commission	229.3	6.0	22.3	21.7	24.5	27.2	331.0
Finland	31.6	1.5	1.5	1.5	1.5	1.7	39.3
France	60.8	5.9	6.0	6.0	7.8	7.6	94.1
Germany	252.7	15.5	10.2	12.3	10.5	11.6	312.8
Ireland	8.9	0.9	0.8	1.5	2.1	2.6	16.7
Israel							0.0
Italy	95.5	3.2	3.2	3.7	4.1	4.4	114.2
Luxembourg	2.7	0.7	1.3	0.8	0.8	0.7	6.9
Netherlands	152.0	11.6	13.7	12.2	17.0	19.2	225.8
Norway	88.5	8.9	7.7	8.3	10.4	11.2	135.0
Portugal	0.6	0.5	0.4	0.3	0.3	0.0	2.1
Spain	12.3	0.9	1.2	1.2	1.3	2.3	19.2
Sweden	121.9	10.3	9.4	9.2	10.7	13.6	175.1
Switzerland	191.5	22.8	18.3	15.7	16.0	15.6	279.9
United Kingdom	197.4	13.9	14.9	19.2	24.8	26.4	296.6
Subtotal	1,643.3	125.8	128.4	130.8	146.9	160.5	2,335.7
North America							
Canada	273.4	12.3	11.4	11.6	10.7	20.9	340.3
United States	871.3	39.4	42.1	45.4	54.9	55.5	1,108.6
Subtotal	1,144.7	51.7	53.5	57.0	65.6	76.4	1,448.9
Pacific Rim							
Australia	94.4	8.1	8.5	7.2	7.3	7.3	132.8
Japan	423.1	39.9	34.6	29.2	17.1	15.0	558.9
Korea, Republic of	4.6	0.8	0.9	1.1	1.1	1.2	9.8
New Zealand	0.7	0.4	0.5	0.7	0.7	0.8	3.8
Subtotal	522.8	49.2	44.5	38.2	26.2	24.4	705.2
Developing and transition economies							
Bangladesh	0.2	0.3	0.3	0.2	-	-	1.0
Brazil	3.0	0.4	0.4	0.4	0.9	0.3	5.4
China	6.5	0.7	1.0	0.9	1.0	1.0	11.1
Colombia	9.6	2.7	2.3	2.5	2.5	2.3	21.9
Côte d'Ivoire	0.6	0.1	0.1	0.1	-	-	0.9
Egypt, Arab Republic of	3.5	1.4	1.4	1.3	0.8	0.5	8.9
India	11.1	0.7	0.8	0.8	1.0	1.3	15.7
Indonesia	1.8	0.4	0.2	0.3	0.2	0.2	3.1
Iran, Islamic Republic of	10.4	1.8	1.7	1.7	0.9	1.2	17.7
Kenya	0.5	0.4	0.1	0.3	0.2	0.3	1.8
Malaysia							0.0
Mexico	5.3	1.7	1.8	1.3	0.9	0.7	11.7
Morocco						0.5	0.5
Nigeria	12.5	1.6	1.0			-	15.1
Pakistan	0.7		0.2	0.6		0.1	1.6
Peru	0.4	0.3	0.2	0.6	0.9	0.4	2.9
Philippines	6.2	0.3	0.4	0.2	0.2	0.2	7.5
Romania							0.0
Russian Federation	0.2					-	0.2
Saudi Arabia	5.0			-	-	-	5.0
South Africa	1.1	0.5	0.6	0.5	0.8	0.8	4.3
Syria		0.5		0.5	0.6	0.5	2.0
Thailand	0.8	0.1	0.1	0.1	0.1	0.1	1.3
Uganda			0.3	0.3	0.6	0.6	1.8
Subtotal	79.4	13.9	12.9	12.6	11.6	10.9	141.3
Foundations							
Ford Foundation	51.7	2.6	2.6	2.7	1.3	0.8	61.7
Kellogg Foundation	3.9	0.1	-	0.2	0.3	0.3	4.8
Rockefeller Foundation	46.8	3.5	4.0	6.3	7.5	7.8	75.9
Syngenta Foundation					1.4	1.1	2.5
Subtotal	102.4	6.2	6.6	9.2	10.5	10.0	144.9
International and regional organizations							
ADB	12.1	4.4	6.0	6.9	6.5	6.0	41.9
AFDB	13.4	2.3	1.2	0.3	0.6	0.2	17.9
Arab Fund	12.0	1.9	1.7	1.6	1.0	0.8	19.0
FAO	0.9	0.2	0.2	0.4	1.8	2.0	5.5
IDB	167.2	1.5	1.4	0.5	0.5	0.3	171.4
IDRC	28.7	3.0	2.3	2.5	2.4	1.9	40.8
IFAD	49.2	6.9	5.8	6.6	5.8	5.7	80.1
OPEC Fund	13.9	0.2	0.2	0.4	0.2	0.3	15.2
UNDP	150.6	2.1	1.8	1.6	1.5	1.1	158.6
UNEP	3.3	0.2	0.7	0.7	1.3	3.6	9.8
World Bank ¹	660.8	45.0	45.0	45.0	50.0	50.0	895.9
Subtotal	1,112.1	67.7	66.3	66.5	71.7	71.8	1,456.1
Non-members	31.6	15.0	19.2	23.1	24.8	26.8	140.5
Total	4,636	330	331	337	357	381	6,373

1 Before 2002 excluded support allocated to the CGIAR Secretariat.

resource allocation

In overall terms, total CGIAR expenditures in 2003 amounted to \$395 million, 4 percent higher than in 2002. Resource allocation at the Centers is largely made at the project level established in the context of a logical framework. The following paragraphs summarize, at the System and Center levels, resource allocations by object of expenditure, output and region.

Distribution among Centers: Figure 2 shows the distribution of expenditures by Center in 2003.

Expenditures by Object: Overall personnel costs represented 46 percent of total expenditures in 2003, compared with 49 percent in 2002. The total number of staff increased from 7,759 in 2002 to 7,902 in 2003 as a result of the higher investment agenda in 2003. Expenditures by object appear in figure 3.

Outputs: Illustrative allocations by the five CGIAR outputs—germplasm improvement, germplasm collection, sustainable production, policy, and enhancing national agricultural research systems (NARS)—for 2003 are shown in figure 4³. These ratios have remained fairly stable over the five-year period, 1999–2003.

Allocation by Region: Illustrative allocations by region appear in figure 5. Expenditures in Sub-Saharan Africa

Figure 3 Expenditures by Object, 2003

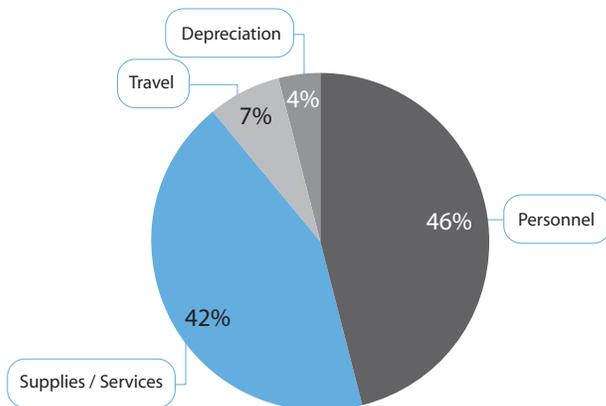


Figure 4 Expenditures by Output, 2003

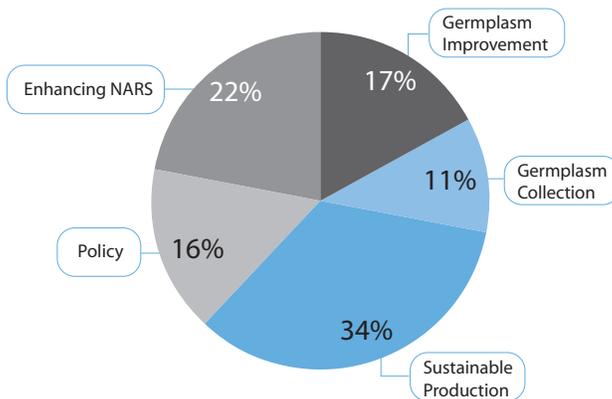
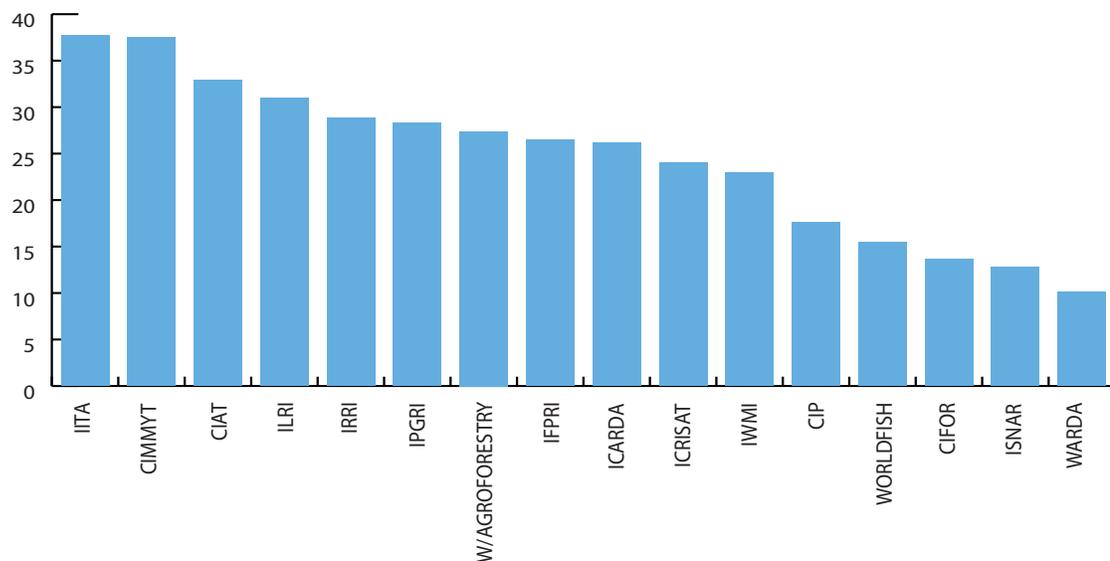


Figure 2 Expenditures by Center
(millions of U.S. dollars)



increased from \$164 million in 2002 to \$180 million in 2003, or from 43 percent to 45 percent. Allocations in Asia for 2003 amounted to \$125 million, Latin America and the Caribbean \$54 million, and Central and West Asia and North Africa \$36 million.

center perspectives

The stability noted at the System level reflects a range of outcomes at the individual Centers. Funding increased for 14 Centers, compared with nine in 2002. Five of the increases—for CIAT, CIFOR, CIMMYT, ISNAR and IWMI—were under 10 percent. Six—for ICARDA, IFPRI, IPGRI, ILRI, WARDA and WorldFish—were between 10 and 15 percent; two—for ICRISAT and IITA—were between 15 and 20 percent; one—for World Agroforestry—was over 20 percent. Only two Centers (compared with seven in

2002) saw a contraction or no change in their funding: IRRI, which experienced a 5 percent contraction, and CIP, whose funding remained unchanged.

Operational results (expenditures matched against funding and Center income) show that eight Centers, compared with three in 2002, ended the year with surpluses of \$0.3 million or higher. They were CIMMYT, CIP, ICRISAT, IFPRI, IRRI, WARDA, WorldFish and World Agroforestry Centre. On the other hand, three Centers, compared with six in 2002, incurred a deficit. These were IPGRI (\$0.3 million), IWMI (\$0.7 million) and ISNAR (\$4.3 million). In the case of ISNAR, the deficit was due to the costs of ceasing operations as an independent Center. The remaining five Centers either broke even or had a marginal surplus. Operational surplus is the main source for CGIAR Centers to build up reserves.

Table 3 Results of Operation by Center, 2002 – 2003
(millions of U.S. dollars)

Center	2002 ¹					2003				
	Member contributions	Center income	Total revenue	Expenditures	Result	Member contributions	Center income	Total revenue	Expenditures	Result
CIAT	31.3	0.7	32.0	32.6	(0.6)	32.0	1.0	32.9	32.9	0.1
CIFOR	12.5	0.0	12.5	11.7	0.8	13.6	0.2	13.8	13.6	0.2
CIMMYT	35.4	1.2	36.6	41.5	(4.9)	36.2	2.0	38.3	37.5	0.7
CIP	18.2	0.6	18.8	19.3	(0.6)	18.0	0.4	18.4	17.6	0.9
ICARDA	23.2	1.2	24.4	24.3	0.0	25.4	0.8	26.2	26.2	0.0
ICRISAT	20.0	1.0	21.0	24.8	(4.0)	23.2	1.4	24.6	24.0	0.6
IFPRI	23.7	0.4	24.1	23.5	0.6	26.5	0.7	27.2	26.5	0.7
IITA	31.4	1.0	32.4	32.7	(0.2)	36.6	1.3	37.9	37.7	0.2
ILRI	26.6	1.6	28.1	28.8	(0.7)	29.5	1.6	31.1	31.0	0.1
IPGRI	25.3	0.4	25.7	25.7	0.1	27.9	0.2	28.1	28.3	(0.3)
IRRI	28.7	4.6	33.3	33.6	(0.2)	27.3	4.8	32.1	28.8	3.3
ISNAR	7.9	0.0	7.9	8.9	(0.9)	8.3	0.3	8.5	12.8	(4.3)
IWMI	20.4	0.7	21.1	20.8	0.2	22.1	0.2	22.3	23.0	(0.7)
WARDA	9.7	0.5	10.1	9.8	0.3	10.7	0.3	11.0	10.1	0.9
World Agroforestry	21.5	0.6	22.1	21.9	0.2	27.3	0.7	27.9	27.4	0.5
WorldFish	12.7	0.0	12.7	12.3	0.4	14.5	1.4	15.9	15.5	0.3
Subtotal	348	14	362	372	(9.6)	379	17	396	393	3.2
System Level										
World Bank allocation to System										
Office and Committees	6.0	—	6.0	6.0	—	7.0	—	7.0	7.0	—
Advance	5.2	—	5.2	5.2	—	—	—	—	—	—
Subtotal	359	14	373	383	(9.6)	386	17	403	400	3.2
Less intercenter activities ²	(2.3)	—	(2.3)	(2.3)	—	(5.2)	—	(5.2)	(5.2)	—
Total	357	14	371	381	(9.6)	381	17	398	395	3.2

1 Restated to include System-level expenditures and intercenter activities.

2 Intercenter activities netted out at the system, not center, level to maintain the integrity of Center accounts.

Figure 5 Allocations by developing regions, 2003

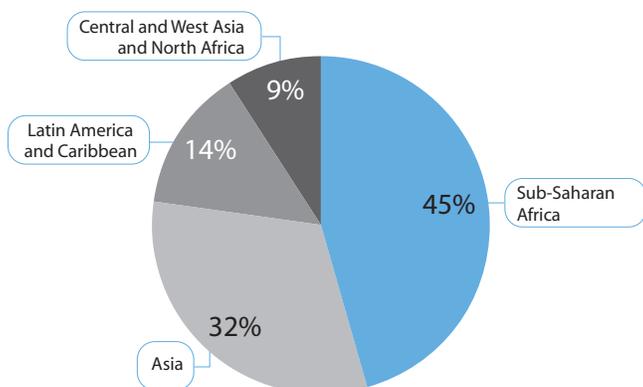


Table 3 provides 2003 and 2002 results of operations by Center and for the System as a whole.

Table 4 provides an overview of the System's finances (funding sources and allocations) for 2003, and table 5 summarizes the System's overall financial position for the years 1999 to 2003.

Centers continue their efforts to address long-term financial health through full-cost budgeting on their restricted projects, among other financial management measures.

summary of challenge programs

The first full year of implementation of Challenge Programs was 2003. About \$19 million was contributed to the Challenge Programs, of which \$8 million was expended, leaving a balance of \$11 million for future implementation. Table 6 summarizes Challenge Program resources and expenditures.

conclusion

The 2003 results confirm the continued stability of CGIAR finances in the aggregate. As in the last several years, however, there has been significant variability among the 16 Centers on a number of financial health indicators, suggesting a need for continued vigilance at both the Center and System levels.

1 The results are reported in U.S. dollars.

2 For presentation purposes, the Members are divided into four distinct groups: industrialized countries (24), developing countries (23), foundations (4), and international and regional organizations (11). Industrialized countries are further divided along geographical lines into three subgroups: Europe, North America and Pacific Rim. Four new members joined in 2003: Israel, Malaysia, Morocco and Syngenta Foundation.

3 Starting 2003 the research agenda has been presented in terms of outputs to be consistent with the concept of the logical framework.

Table 4 **Center Finances, 2003**
(millions of U.S. dollars)

	Allocations										Revenue						Reserves Addition (+)/ Draw(-)
	Germpasm Improvement	Germpasm Collection	Sustainable Production	Policy	Enhancing NARS Expenditures	Total Expenditures	Europe	Pacific Rim	North America	Developing Countries	Intl & Regnl Organizations	Foundations	Non- members	Intercenter Activities	Total Funding	Center Income	
Center																	
CIAT	10.6	5.0	11.0	1.7	4.7	32.9	10.6	1.3	6.6	2.5	6.8	1.8	1.5	0.8	32.0	1.0	0.1
CIFOR	0.0	2.7	7.0	3.0	0.9	13.6	7.7	1.2	1.4	0.1	1.4	0.3	1.4	0.0	13.6	0.2	0.2
CIMMYT	10.8	6.1	10.8	2.2	7.6	37.5	9.8	4.2	10.0	1.5	4.8	3.1	2.5	0.3	36.2	2.0	0.7
CIP	5.6	1.4	6.6	1.5	2.6	17.6	10.5	0.7	2.7	0.3	2.9	0.0	0.5	0.5	18.0	0.4	0.9
ICARDA	4.4	3.1	10.8	1.6	6.2	26.2	8.7	1.3	6.4	1.8	5.5	0.0	1.3	0.3	25.4	0.8	0.0
ICRISAT	7.4	1.8	8.2	2.8	4.0	24.0	8.3	1.3	5.2	0.4	5.2	0.6	1.8	0.3	23.2	1.4	0.6
IFPRI	0.0	0.0	1.5	15.4	9.5	26.5	8.5	1.3	5.2	0.6	5.5	0.8	3.3	1.2	26.5	0.7	0.7
IITA	8.0	1.5	14.3	5.0	8.9	37.7	12.4	0.6	15.0	0.1	4.1	0.5	3.9	0.1	36.6	1.3	0.2
ILRI	2.9	2.2	20.5	2.0	3.4	31.0	15.9	0.8	4.8	0.7	4.5	0.3	2.1	0.3	29.5	1.6	0.1
IPGRI	4.6	7.9	3.7	3.2	8.9	28.3	13.5	1.7	1.9	0.9	5.8	0.1	3.9	0.1	27.9	0.2	(0.3)
IRRI	7.1	2.4	10.2	3.6	5.5	28.8	13.0	5.2	4.5	0.5	2.8	0.7	0.1	0.4	27.3	4.8	3.3
ISNAR	0.0	0.0	0.0	2.8	10.0	12.8	4.8	0.0	1.2	0.1	1.1	0.1	0.7	0.2	8.3	0.3	(4.3)
IWMI	0.0	5.5	7.3	6.1	4.1	23.0	11.4	1.2	2.0	0.5	6.1	0.0	0.9	0.0	22.1	0.2	(0.7)
WARDA	2.8	1.1	2.6	0.8	2.7	10.1	4.2	1.8	1.3	0.0	2.9	0.3	0.1	0.0	10.7	0.3	0.9
World Agroforestry	0.7	2.4	11.5	6.9	5.9	27.4	15.0	0.9	5.1	0.4	3.1	1.2	1.4	0.2	27.3	0.7	0.5
WorldFish	0.5	0.1	8.3	5.1	1.5	15.5	6.3	0.8	3.0	0.4	2.4	0.0	1.3	0.3	14.5	1.4	0.3
Subtotal	66	43	134	64	86	393	161	24	76	11	65	10	27	5	379	17	3.2
System Level																	
World Bank allocation to System Office and Committees						7.0					7.0						
Subtotal	66	43	134	64	86	400	161	24	76	11	72	10	27	5	386	17	3.2
Less intercenter activities						(5)								(5)	(5)		—
Total	66	43	134	64	86	395	161	24	76	11	72	10	27	0	381	17	3.2
	17%	11%	34%	16%	22%	100%											

Table 5 **CGIAR System Financial Position, 1999–2003**
(thousands of U.S. dollars)

	1999	2000	2001	2002	2003
Assets					
Current assets					
Cash and cash equivalents	212,347	151,327	142,339	149,076	201,662
Accounts receivable:					
Donors	54,062	60,823	63,346	72,864	87,768
Employees	2,591	3,499	2,498	3,078	2,797
Others	12,656	13,576	13,342	14,864	14,527
Inventories	6,653	6,506	6,040	4,447	4,165
Prepaid expenses	3,398	3,069	3,265	3,673	3,262
Other current assets	4,549	5,248	3,515	3,327	4,567
Total current assets	296,256	244,048	234,345	251,329	318,748
Fixed assets					
Property, Plant, and Equipment	399,398	289,339	274,451	261,394	266,668
Less: Accumulated Depreciation	225,702	191,265	185,392	184,222	187,083
Total fixed assets (net)	173,696	98,074	89,058	77,172	79,585
Other assets	—	25,728	33,495	41,828	37,838
Total assets	469,952	367,850	356,898	370,329	436,171
Liabilities and net assets					
Current liabilities					
Accounts Payable:					
Donors	100,576	56,658	54,078	78,749	110,925
Employees	9,876	5,369	12,020	11,877	13,805
Others	25,520	25,966	26,687	31,877	38,820
In-trust Accounts	3,457	3,838	2,505	2,300	8,361
Accruals and Provisions	43,855	48,259	47,223	42,377	28,925
Total current liabilities	183,284	140,090	142,513	167,180	200,836
Long-term liabilities					
Long-term loan					
Others	23,453	24,899	25,814	27,906	25,876
Total long-term liabilities	23,453	24,899	25,814	27,906	25,876
Total liabilities	206,737	164,989	168,328	195,086	226,712
Net assets					
Unrestricted					
Unrestricted net assets excluding fixed assets	89,519	104,787	99,512	96,039	126,820
Fixed assets	173,696	98,074	89,058	77,172	79,585
Unrestricted net assets	263,215	202,861	188,570	173,211	206,405
Restricted				2,032	3,054
Total net assets	263,215	202,861	188,570	175,243	209,459
Total liabilities and net assets	469,952	367,850	356,898	370,329	436,171

Table 6 **Summary of Challenge Programs, 2003**
(millions of U.S. dollars)

	Approved			Under Preparation	Total
	Harvest Plus ¹	Water & Food	Generation ²	Sub- Saharan Africa	
Cash receipts from Donors					
Austria	0.05		0.05		0.10
Bill & Melinda Gates Fdn	7.00				7.00
Denmark		0.50			0.50
Netherlands	—	1.83			1.83
Norway	—	0.35		0.55	0.90
Sweden	—	0.11			0.11
Switzerland	—	1.02			1.02
World Bank	3.00	3.00	0.90		6.90
Subtotal receipts	10.05	6.80	0.95	0.55	18.36
Unallocated (Austria)					0.29
Total receipts				—	18.65
Expenditures listed by Donor					
European Commission			0.21		0.21
Netherlands		1.22			1.22
Norway		0.35			0.35
Sweden		0.11			0.11
Switzerland		0.39			0.39
United States		0.07			0.07
World Bank	2.02	2.85	0.61		5.47
Total expenditures	2.02	4.98	0.81	—	7.81
Balance	8.04	1.82	0.14	0.55	10.83

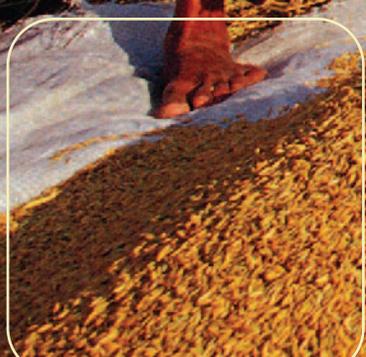
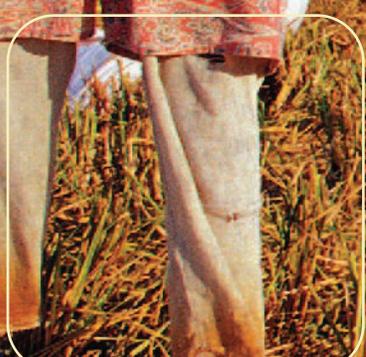
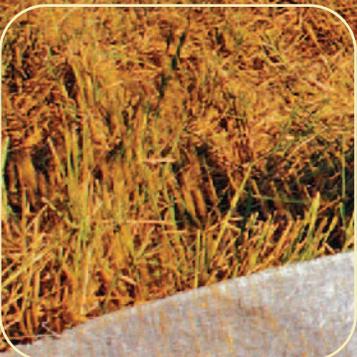
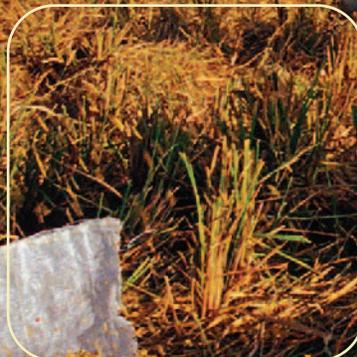
1 Also known as Biofortification. Total receipts do not include \$0.03m in investment income.

2 Also known as Genetic Resources.



who's who

in the cgiar in 2003



the cgiar members

Countries

Australia
Austria
Bangladesh
Belgium
Brazil
Canada
China
Colombia
Côte d'Ivoire
Denmark
Egypt, Arab Republic of
Finland
France
Germany
India
Indonesia
Iran, Islamic Republic of
Ireland
Israel
Italy
Japan
Kenya
Korea, Republic of
Luxembourg
Malaysia
Mexico
Morocco
Netherlands
New Zealand
Nigeria
Norway
Pakistan
Peru
Philippines
Portugal
Romania
Russian Federation
South Africa
Spain
Sweden

Representatives

Peter Core
Marcus Heinz
M.A. Hamid Miah
Luc Sas
Clayton Campanhola
Christine Campbell
Dongyu Qu
Luis Arango-Nieto
Kassoum Traore
Klaus Winkel
Magdy Madkour
Ulla-Maija Finskas
Denis Despreaux
Hans-Jochen de Haas
Mangala Rai
Hadi Pasaribu
Ali Ahoonmanesh
Brendan Rogers
Nachman Paster
Gioacchino Carabba
Hayato Nakajima
Wilfred Mwangi
Kyung-Han Ryu
Georges Heinen
Saharan Anang
Jesús Moncada de la Fuente
Hamid Narjisse
Leen Boer
Peter Adams
Oloche Edache
Aslak Brun
Zafar Altaf
Ricardo Sevilla Panizo
William Medrano
Joao Borges
Mihaiu Radulian
Viktor Dragavtsev
Bongiwe Njobe
Adolfo Cazorla
Eva Ohlsson

Cooperating Institutions

Australian Centre for International Agricultural Research
Federal Ministry of Finance
Ministry of Agriculture
Ministry of Foreign Affairs
Ministry of Agriculture and Food Supply, EMBRAPA
Canadian International Development Agency
Ministry of Agriculture
Ministry of Agriculture and Rural Development
Ministry of Agriculture and Animal Resources
Ministry of Foreign Affairs, DANIDA
Agricultural Research Center
Ministry of Foreign Affairs
Ministry of National Education and Research
Federal Ministry of Economic Cooperation and Development
Ministry of Agriculture, ICAR
Ministry of Agriculture and Forestry
Ministry of Agriculture
Department of Foreign Affairs
Ministry of Agriculture
Ministry of Foreign Affairs
Ministry of Foreign Affairs
Ministry of Agriculture and Rural Development
Ministry of Agriculture
Ministry of Finance
Malaysian Agricultural Research and Development Institute
Ministry of Agriculture
Ministry of Agriculture, INRA
Ministry of Foreign Affairs
Ministry of Foreign Affairs and Trade
Ministry of Agriculture and Natural Resources
Ministry of Foreign Affairs
Ministry of Food, Agriculture, and Livestock
Ministry of Agriculture
Department of Agriculture
Ministry of Finance
Ministry of Agriculture and Food
Russian Academy of Agricultural Sciences
Ministry of Agriculture and Land Affairs
Ministry of Agriculture
Ministry of Foreign Affairs, SIDA

Countries

Switzerland
Syrian Arab Republic
Thailand
Uganda
United Kingdom
United States

Representatives

Dora Rapold
Adel Safar
Chakarn Saengruksawong
William Otim-Nape
Paul Spray
Emmy M. Simmons

Cooperating Institutions

Swiss Agency for Development and Cooperation
Ministry of Agriculture and Agricultural Reform
Department of Agriculture
National Agricultural Research Organization
Department for International Development
United States Agency for International Development

Foundations

Ford Foundation
Kellogg Foundation
Rockefeller Foundation
Syngenta Foundation for
Sustainable Agriculture

Representatives

Jeff Campbell
Rick Foster
Peter Matlon
Andrew J. Bennett

International and Regional Organizations

African Development Bank
Arab Fund for Economic and Social Development
Asian Development Bank
Commission of the European Community
Food and Agriculture Organization of the United Nations
Gulf Cooperation Council of the Arab States
Inter-American Development Bank
International Development Research Centre
International Fund for Agricultural Development
OPEC Fund for International Development
United Nations Development Programme
United Nations Environment Programme
World Bank

Representatives

Afewerk Aklilu
Mervat Wehba Badawi
Robert J. Dobias
Uwe Werblow
John Monyo
Hilal Ambusaidi
Ruben Echeverria
Peter Cooper
Rodney Cooke
Suleiman Al-Herbish
Alvaro Umaña
Shafqat Kakakhel
Kevin Cleaver

the cgiar

CGIAR Chairman

Ian Johnson, Vice President, Environmentally and Socially Sustainable Development, World Bank

CGIAR Director

Francisco J. B. Reifschneider

Co-sponsors and their Representatives

Food and Agriculture Organization of the United Nations: John Monyo

International Fund for Agricultural Development: Rodney Cooke

United Nations Development Programme: Alvaro Umaña

World Bank: Kevin Cleaver

executive council

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Co-Sponsors:

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Kevin Cleaver (World Bank)

Rodney Cooke (IFAD)

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Interim SC: Emil Javier (ISC Chair)

(until Sept. 2003)

Richard Harwood (SC Transition

Coordinator (Sept.-Dec. 2003)

GFAR: Mohamad Roozitalab

(GFAR Chair)

OECD/DAC

Americas: Franklin Moore

(United States)

Asia-Pacific: Hayato Nakajima (Japan)

Europe: Klaas Tamminga (Netherlands)

Jochen de Haas (Germany)

Klaus Winkel (Denmark)

Developing Countries

Americas: Luis Arango Nieto

(Colombia)

SSA: Bongwiwe Njobe (South Africa)

Asia-Pacific: Dongyu Qu (China)

CWANA: Nouredin Mona (Syria)

Regional Fora: Abel Al-Nabi Fardous

(AARINENA)

Foundations: Peter Matlon

(Rockefeller)

Partners:

Private Sector: Sam Dryden

(PSC Chair)

Civil Society (temporarily vacant)

Executive Secretary, ExCo:

Francisco J. B. Reifschneider

CGIAR Secretariat: Selçuk Özgediz

Robert B. Horsch

William S. Niebur

Mumeka M. Wright

Usha Barwale Zehr

standing committees

Advisory Committees

Interim Science Council

(until Sept. 2003)

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Michael Cernea

Alain de Janvry

Elias Fereres

Hans Gregersen (ex-officio)

Richard R. Harwood

Maria Antonia Martinez

Oumar Niangado

Hirofumi Uchimiya

Vo-Tong Xuan

Standing Panel on Impact

Assessment (SPIA)

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Ruben Echeverria

Hermann Waibel

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NGO Committee (temporarily inactive)

Private Sector Committee

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Alejandro Delfino

Bruno Ferrari

Bernward J.H. Garthoff

cgiar system office

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Feroza Vatcha, Administrative Officer

Josephine Hernandez, Senior Executive

Assistant

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Selçuk Özgediz, Management Adviser

Manuel Lantin, Science Adviser

Maria Iskandarani, Research Analyst

Jason Yauney, Senior Program Assistant

Barbara Eckberg, Program Assistant

Investor Relations and Finance

Ravi Tadvalkar, Lead Finance Officer

Shey Tata, Senior Finance Officer

Salah Brahimi, Senior Cofinancing

Officer

Zewdnesh Abegaz, Senior Program

Assistant

Information and Corporate

Communications

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Advisor

Sarwat Hussain, Senior

Communications Officer

Danielle Lucca, Information Officer

M. Caryl Jones-Swahn,
Communications Assistant
Elizabeth Charles, Program Assistant

Science Council Secretariat

Amir Kassam, Acting Executive Secretary
Timothy Kelley,
Senior Agricultural Research Officer
Sirkka Immonen, Senior Agricultural Research
Officer

Central Advisory Service for Intellectual Property

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Chief Information Officer

Enrica M. Porcari, Chief Information Officer

Executive Secretary, Center Directors Committee

Kerri Wright Platais

Future Harvest Foundation

Jason Wettstein, Communications Officer

Gender and Diversity

Vicki Wilde, Program Leader

Internal Audit

John Fitzsimon

Strategic Advisory Service on Human Resources

N. P. Rajasekharan, Director

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Angela Cropper, CIFOR
Benchaphun Shinawatra Ekasingh, IPGRI
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James Godfrey, CIP
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Angeline Kamba, IRRI
Robert Kearney, WorldFish
Alex McCalla, CIMMYT
Moise C. Mensah, ISNAR
Richard Musangi, WARDA
A. Uzo Mokwunye, ICRISAT

Mortimer Neufville, IITA
Eugene Terry, World Agroforestry
(CBC Executive Secretary: M. Caryl Jones-Swahn)

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Adel El-Beltagy, ICARDA, CDC Chair
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Jacques P. Ekebil, ISNAR
Dennis Garrity, World Agroforestry
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Masaru Iwanaga, CIMMYT
David Kaimowitz, CIFOR
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Frank Rijsberman, IWMI
Carlos Sere, ILRI
Joachim von Braun, IFPRI
Joachim Voss, CIAT
Meryl Williams, WorldFish
Hubert Zandstra, CIP
(CDC Executive Secretary: Kerry Wright Platais)

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Kevin Cleaver
Emile Frison
Dennis Garrity
Klaus Leisinger
Alex McCalla
Kanayo Nwanze
Ruth Raymond
Francisco J. B. Reifschneider
John Riggan
Joachim Voss
Meryl Williams
Hubert Zandstra

cgjar
1971–2003

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Ismail Serageldin, 1994–2000
V. Rajagopalan, 1991–1993
Wilfried Thalwitz, 1990–1991
W. David Hopper, 1987–1990
S. Shahid Hussain, 1984–1987
Warren Baum, 1974–1983
Richard H. Demuth, 1971–1974

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Francisco J. B. Reifschneider,
2001–

CGIAR Executive Secretaries, 1972–2001

Alexander von der Osten,
1989–2001
Curtis Farrar, 1982–1989
Michael Lejeune, 1975–1982
Harold Graves, 1972–1975

iSC Chairmen, 2001–2003

Emil Javier, 2001–2003

TAC Chairmen, 1971–2001

Emil Q. Javier, 2000–2001
Donald Winkelmann,
1994–1999
Alex McCalla, 1988–1994
Guy Camus, 1982–1987
Ralph Cummings, 1977–1982
Sir John Crawford, 1971–1976

TAC Executive Secretaries, 1971–2003

Shelleemiah Keya, 1996–2003
Guido Gryseels, 1995–1996
John Monyo, 1985–1994
Alexander von der Osten,
1982–1985
Philippe Mahler, 1976–1982
Peter Oram, 1971–1976

facts about cgiar staff

A recent survey showed the diversity of CGIAR staff, all of whom are joined in a solid bond of partnership to promote development where it matters: in rural areas where the inhabitants often live on the fringes of the global economy.

People are the CGIAR's biggest strength, committed to mobilizing quality science to benefit poor farmers in developing countries. Research, by definition, is a collaborative enterprise. A recent survey showed the diversity of CGIAR staff, all of whom are joined in a solid bond of partnership to promote development where it matters: in rural areas where the inhabitants often live on the fringes of the global economy.

- ❑ In 2003, the CGIAR had 7,651 staff—the largest groups were based in Colombia, India, Nigeria and Philippines, all countries that host a CGIAR Center.
- ❑ About 90 percent of CGIAR staff and 58 percent of CGIAR scientists come from developing countries.
- ❑ About one-third of CGIAR staff operates outside Center headquarters in regional, country or field offices.
- ❑ About 27 percent of CGIAR staff are women.
- ❑ Of the 16 Center Directors leading CGIAR Centers, 4 are from developing countries.
- ❑ Each CGIAR Center is run by a Board of Trustees—overall, there were 188 individuals serving on the Board of Trustees of different Centers, including Center Directors.
- ❑ Of the 188 Board members, 59 percent come from developing countries and 28 percent of all Board members were women.
- ❑ Sharing and strengthening knowledge is key to building the scientific capacities of developing countries—in 2003, CGIAR scientists participated in the training of 676 students at the master's level, and 719 students at the doctoral level.
- ❑ In 2003, nearly 2,000 peer-reviewed articles and books were published by CGIAR scientists.
- ❑ Of the 2,000 articles published by CGIAR Centers in 2003, around 40 percent were coauthored with partners from developing countries.

In conveying this composite portrait of CGIAR staff, we recognize the continuing need to improve diversity and gender balance across the entire staff.

acronyms and abbreviations

AARINENA	Association of Agricultural Research Institutions in the Near East and North Africa	ExCo	Executive Council of the CGIAR
ACIAR	Australian Centre for International Agricultural Research	FAO	Food and Agriculture Organization of the United Nations
AGM03	2003 Annual General Meeting of the CGIAR	GFAR	Global Forum on Agricultural Research
AIDS	Acquired Immune Deficiency Syndrome	GIS	geographic information systems
AMBIONET	Asian Maize Biotechnology Network	GRPI	Genetic Resources Policy Initiative of IPGRI
ARI	African Rice Initiative	HNPV	Helicoverpa nuclear polyhedrosis
AVRDC	Asian Vegetable Research Development Centre	IAS	International Accounting Standards
CAC	Central Asia and the Caucasus region	ICAR	Indian Council of Agricultural Research
CAPRI	Collective Action and Property Rights program of the CGIAR	ICARDA	International Center for Agricultural Research in the Dry Areas
CBC	Committee of Board Chairs of the CGIAR	ICG	International Coconut Genebank
CDC	Center Directors Committee of the CGIAR	ICIMOD	International Center for Integrated Mountain Development
CGI	crop germplasm improvement	ICIPE	International Center for Insect Plant Ecology
CGIAR	Consultative Group on International Agricultural Research	ICRAF	World Agroforestry Centre
CIAT	Centro Internacional de Agricultura Tropical International (Center for Tropical Agriculture)	ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
CIDA	Canadian International Development Agency	ICT-KM	Information and Communications Technology and Knowledge Management
CIFOR	Center for International Forestry Research	IDB	Inter-American Development Bank
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo (International Maize and Wheat Improvement Center)	IDRC	International Development Research Centre
CIP	Centro Internacional de la Papa (International Potato Center)	IER	Institut d'Economie Rurale (Institute of Rural Economy)
CMD	cassava mosaic disease	IFAD	International Fund for Agricultural Development
COGENT	Coconut Genetic Resources Network	IFPRI	International Food Policy Research Institute
CONDESAN	Consortio para el Desarrollo Sostenible de la Ecorregión Andina	IFReDI	Inland Fisheries Research and Development Institute
CORPOICA	Colombian Corporation for Agricultural Research	IITA	International Institute of Tropical Agriculture
COSOP	Country Strategic Opportunities	ILRI	International Livestock Research Institute
CP	Challenge Program	INIA	Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria
CSO	civil society organizations	INRA	Institut National de la Recherche Agronomique (National Agricultural Research Institute)
CTVM	Centre for Tropical Veterinary Medicine, University of Edinburgh	IPGRI	International Plant Genetic Resources Institute
CWANA	Central and West Asia and North Africa	IPM	integrated pest management
DANIDA	Danish International Development Agency	IPR	intellectual property rights
DFID	Department for International Development, UK	IRRI	International Rice Research Institute, Philippines
EMBRAPA	Brazilian Agricultural Research Corporation	IRS	internationally recruited staff
		IRT	ISNAR Restructuring Team

iSC	Interim Science Council of the CGIAR	PhilRice	Philippine Rice Research Institute
ISNAR	International Service for National Agricultural Research	PwC	PricewaterhouseCoopers
IWMI	International Water Management Institute	RAFNET	Rwanda Agroforestry Network
IWWIP	International Winter Wheat Improvement Program	RWC	Rice-Wheat Consortium
LAC	Latin America and Caribbean	SC	Science Council
LIRI	Livestock Health Research Institute, Uganda	SGRP	Systemwide Genetic Resources Program of the CGIAR
NARO	National Agricultural Research Organization	SIDA	Swedish International Development Cooperation Agency
NARS	national agricultural research systems	SPIA	Standing Panel on Impact Assessment
NCAP	National Centre for Agricultural Economics and Policy	TAC	Technical Advisory Committee of the CGIAR
NEPAD	New Partnership for Africa's Development	TICAD III	Third Tokyo International Conference on African Development
NERICA	new rices for Africa	UAM	University of Madrid
NGO	nongovernmental organization	USAID	United States Agency for International Development
NIA	National Irrigation Authority, Philippines	UNDP	United Nations Development Programme
NZAID	New Zealand's International Aid and Development Agency	UNEP	United Nations Environment Programme
OECD/DAC	Organisation for Economic Co-operation and Development/Development Assistance Committee	UNESCO	United Nations Educational, Scientific and Cultural Organization
OPEC	Organization of Petroleum-Exporting Countries	USDA	United States Department of Agriculture
PARC	Public Awareness and Resource Mobilization Committee	USEPA	United States Environmental Protection Agency
PRAPACE	Programme Régional d'Amélioration de la Culture de la Pomme de Terre en Afrique Centrale et de l'Est (Regional Potato and Sweet Potato Improvement Network for East and Central Africa)	VITAA	Vitamin A for Africa
PSC	Private Sector Committee of the CGIAR	WARDA	West Africa Rice Development Association – The Africa Rice Center
		WEHAB	United Nations initiative for integrated action on water, energy, health, agriculture and biodiversity
		WSSD	World Summit on Sustainable Development
		WTO	World Trade Organization

Rockefeller Foundation
Romania
Russian Federation
South Africa
Spain
Sweden
Switzerland
Syngenta Foundation
for Sustainable
Agriculture
Syrian Arab Republic
Thailand
Uganda
United Kingdom
United Nations
Development
Programme
United Nations
Environment
Programme
United States
of America
World Bank

向伙伴们致意

Homenagem aos Parceiros do CGIAR

CGIARのパートナーの皆様方に対する謝意

tribute to

cg iar partners



شكر وتقدير للشركاء

Homenaje a los colaboradores del CGIAR

Отдавая должное деятельности партнеров в рамках КГМИСХ

Hommage aux partenaires du CGIAR





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