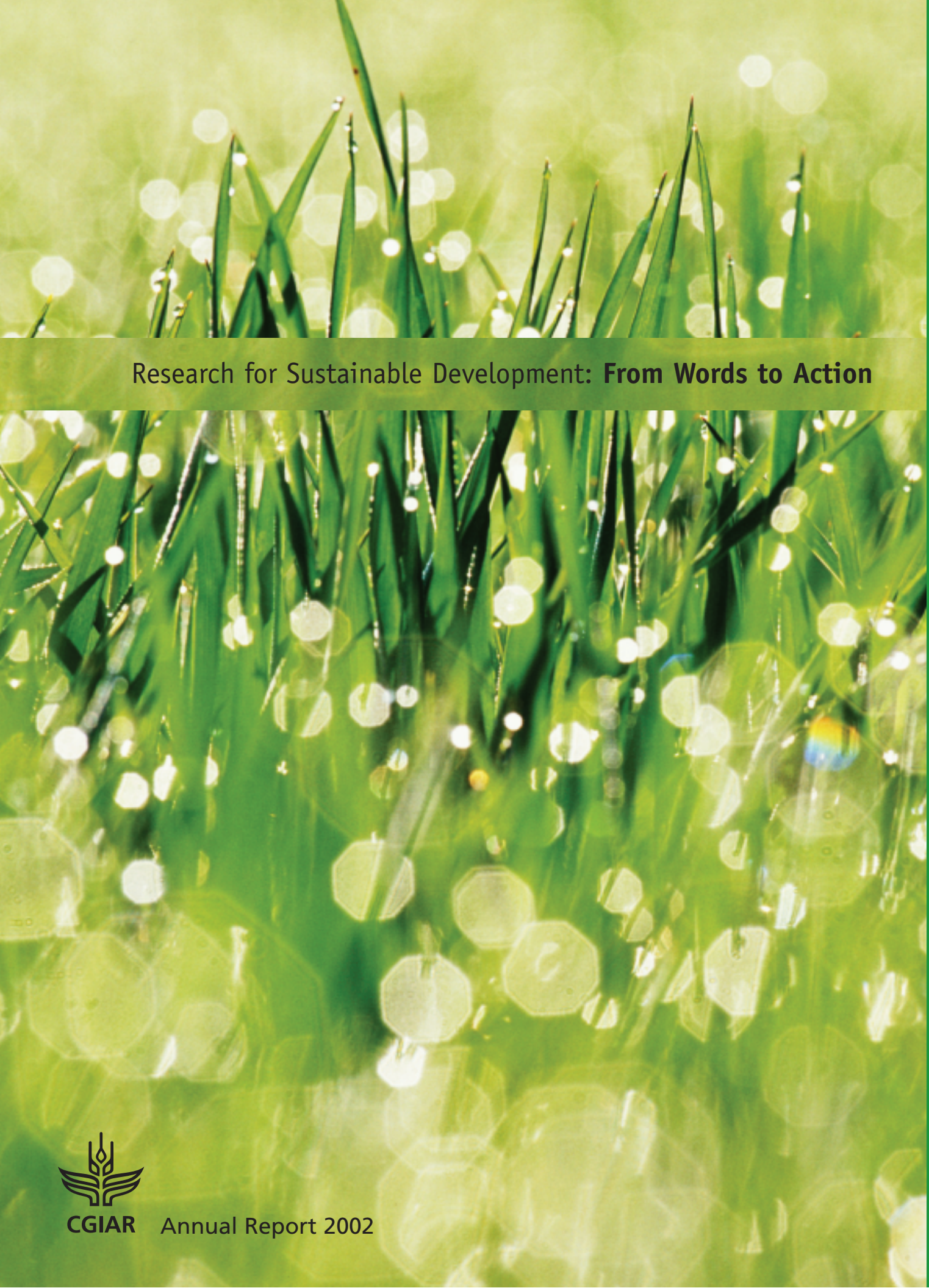

Research for Sustainable Development: **From Words to Action**

CGIAR Annual Report 2002

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

Tribute to CGIAR Partners

The year 2002 will be remembered as the Year of the Summits. At diverse fora and locales, the international community coalesced around a set of critical themes such as the challenges of financing development, reducing hunger and promoting sustainable development. The consensus emerging from the summits was unequivocal: partnerships are key to reducing poverty, hunger and environmental degradation — the global challenges that are integrally linked to the research-for-development efforts of the Consultative Group on International Agricultural Research (CGIAR).

The reports presented in this document demonstrate how the CGIAR alliance is helping to fulfill the objectives of the 2002 summits by mobilizing agricultural science to reduce poverty, foster human well-being, promote agricultural growth and protect the environment. We take this opportunity to acknowledge the support of our partners representing the public and private sectors, civil society and farmer groups, and the broader scientific and academic community in industrialized and developing countries. Our achievements and positive impacts would simply not be possible without their unstinting support.

African Development Bank
Arab Fund for Economic and Social Development
Asian Development Bank
Australia
Austria
Bangladesh
Belgium
Brazil
Canada
China
Colombia
Commission of the European Community
Côte d'Ivoire
Denmark
Arab Republic of Egypt
Finland
Food and Agriculture Organization of the United Nations
Ford Foundation
France
Germany
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Inter-American Development Bank
International Development Research Centre
International Fund for Agricultural Development
Islamic Republic of Iran
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Syrian Arab Republic
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United Nations Development Programme
United Nations Environment Programme
United States of America
World Bank

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CGIAR at a Glance: Mobilizing Agricultural Science

The Consultative Group on International Agricultural Research (CGIAR) is a strategic alliance of countries, international and regional organizations, and private foundations supporting 16 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.

More than 8,500 CGIAR scientists and other staff members in over 130 countries 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 farming 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, which are freely available to all); and
- **Improving policies** that affect agriculture, food, health, the spread of new technologies, and the management and conservation of natural resources.

Major reforms designed to mobilize science, extend the alliance, streamline governance and maximize impact on issues of global significance are gaining ground and yielding benefits. The innovative Challenge Program initiative is designed to address such important regional and global issues as combating the micronutrient deficiencies that afflict more than 3 billion people and addressing freshwater scarcity by improving water-use efficiency in agriculture. Challenge Programs are facilitating collaborative research and helping to mobilize knowledge, technology and resources.

> CGIAR RESEARCH SPECIFICALLY TARGETS THE SPECIAL NEEDS, CROPS AND ECOLOGIES OF POOR FARMING COMMUNITIES WORLDWIDE

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 2002, Israel, Malaysia, Morocco and the Syngenta Foundation for Sustainable Agriculture joined the alliance, whose membership is poised to grow further.

CGIAR contributions totaled $357 million in 2002 — the single-largest investment in mobilizing science to generate public goods for the benefit of poor farming communities worldwide.

CGIAR and the Summits: Agriculture at the Heart of the Development Agenda

The summits of 2002 focused the world's attention on the development challenges confronting the human family and offered a road map for achieving sustainable development. Prominent among the outcomes was the recognition accorded agriculture and rural development as the twin pillars central to the agenda for sustainable development.

Recognizing the important, agenda-setting function of the summits, the CGIAR adopted a proactive stance, working closely with the United Nations system and other partners. A small CGIAR task force led by the International Plant Genetic Resources Institute (IPGRI) and chaired by Coosje Hoogendoorn, IPGRI deputy director general for programs, coordinated the System's presence at these key events. CGIAR engagement and contributions included providing technical inputs and participating in deliberations, preparatory committee meetings and plenary sessions. The focus throughout was to demonstrate the beneficial impacts of new, science-based agricultural technologies specifically adapted to the crops, ecologies and development needs of poor farmers — benefits that foster economic growth that is environmentally friendly and socially responsible.

> WATER. ENERGY. HEALTH. AGRICULTURE. BIODIVERSITY. FIVE AREAS IN WHICH PROGRESS IS POSSIBLE WITH THE RESOURCES AND TECHNOLOGIES AT OUR DISPOSAL TODAY. FIVE AREAS IN WHICH PROGRESS WOULD OFFER ALL HUMAN BEINGS A CHANCE OF ACHIEVING PROSPERITY THAT WILL NOT ONLY LAST THEIR OWN LIFETIME, BUT CAN BE ENJOYED BY THEIR CHILDREN AND GRANDCHILDREN TOO.

— KOFI ANNAN, UNITED NATIONS SECRETARY-GENERAL, MAY 2002

The benefits of these efforts were tangible. Whether the spotlight was on the need for sustainable financing as in Monterrey, or on the call for redoubling efforts to combat the scourge of hunger as in Rome, or on charting the way forward for achieving sustainable development as in Johannesburg, the multifaceted contributions of science-based agricultural development figured prominently at the summits. In addition, the CGIAR System is an active and contributing partner to the range of summit follow-up activities that are underway.

Message from the Chairman and Director: From Words to Action

Several summits in 2002 explored the challenges and opportunities of international development. These summits serve as the backdrop to this annual report. We are honored to include contributions from distinguished members of the CGIAR partnership. Jacques Diouf, director-general of the Food and Agriculture Organization of the United Nations (FAO), a CGIAR Cosponsor, developed the concept of a World Food Summit. Nitin Desai was secretary-general of the World Summit on Sustainable Development in Johannesburg. Hamid Narjisse is the representative to the CGIAR from Morocco, which joined the alliance in 2002. Updated information from CGIAR-supported Centers, and the System's financial data, round out the contents of this report.

The challenges of poverty, hunger and environmental degradation define the international development agenda. Over a billion human beings continue to live in absolute poverty — on less than a dollar per day. An additional 2 billion exist on less than $2 per day. But poverty is not only a matter of low incomes. The poor lack decent shelter, clothing, education and nutrition. They lack access to social and political participation. The world cannot stand idly by while these conditions persist.

> IT IS ENCOURAGING THAT THE CENTRALITY OF AGRICULTURE AS A COMPONENT OF SUSTAINABLE DEVELOPMENT IS ENJOYING RENEWED FOCUS IN PUBLIC POLICY

No country has been successful in fighting the many dimensions of poverty without the underpinnings of economic growth linked with poverty-reduction policies and programs. Agricultural growth is the starting point of economic growth in most developing countries because agriculture (encompassing crops, livestock, fisheries and forestry) is the single most important sector of their economies. An increase in crop yield of 1 percent in the poorest countries can reduce the numbers living under the $1-per-day poverty line by 6.25 million. Improved income is only the beginning. The evidence is clear that a thriving agricultural sector helps to enhance the well-being of people in many ways: improved nutrition and health, better education and social empowerment, and greatly expanded opportunities for participating in economic growth.

The necessary caution is that agricultural development that is environmentally harmful creates a new set of

Ian Johnson
CGIAR Chairman

Francisco Reifschneider presents the *CGIAR Annual Report 2001* to Sudesh P. Singh, a Rice-Wheat Consortium farmer in India.

problems that can offset the gains. Biodiversity, croplands, fish stocks, forests and water resources are already under threat. These trends must be reversed. Thus, agricultural development and effective management of natural resources are complementary and have to be treated as two aspects of a single endeavor: achieving sustainable development. Agricultural research committed to generating public goods can create new knowledge, thereby engendering new science-based technologies for achieving the sustainable agricultural productivity that supports robust, equitable development.

The CGIAR is encouraged, therefore, that the centrality of agriculture as a component of sustainable development is enjoying renewed focus in public policy. This process began at the Rio Earth Summit, the landmark United Nations Conference on Environment and Development of 1992. Rio produced a new paradigm of environmentally and socially sustainable development founded upon international conventions on biodiversity, climate change and desertification.

The Millennium Development Goals renewed the goals of the Rio Earth Summit, while the *Monterrey Consensus* (2002) laid the foundation for a new development partnership in a number of areas including trade, official development assistance, domestic savings and debt reduction.

The World Food Summit: five years later (2002) reaffirmed the goal adopted at the World Food Summit (1996) of halving the number of the world's hungry by 2015. The *Summit Declaration* made specific reference to the CGIAR's research-for-development efforts.

> A RANGE OF AGRICULTURAL ISSUES — BIODIVERSITY, FOOD SECURITY, INTELLECTUAL PROPERTY RIGHTS, NATURAL RESOURCE MANAGEMENT, NUTRITION, PRODUCTIVITY AND TRADE — FIGURED PROMINENTLY AT THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT IN JOHANNESBURG

Because of its all-encompassing approach, the most far-reaching of the summits was the Johannesburg Summit 2002 — the World Summit on Sustainable Development. In preparation for that event, UN Secretary-General Kofi Annan launched what came to be known as the WEHAB initiative for the five areas in which it calls for urgent and integrated action: water, energy, health, agriculture and biodiversity. CGIAR-supported research positively affects all of them, so it is not surprising that a CGIAR contribution figured prominently in the framework paper for action on agriculture presented in Johannesburg as part of the WEHAB initiative. The CGIAR was, in fact, very much engaged in preparations for the summit and was actively and capably represented in Johannesburg. The impact of the outstanding research carried out by CGIAR-supported Centers drew many favorable references.

A range of agricultural issues — biodiversity, food security, intellectual property rights, natural resource management, nutrition, productivity and trade — figured prominently in Johannesburg. Participants reaffirmed the critical importance of agriculture, adopting targets and timetables for action on a number of fronts. These include reducing biodiversity loss by 2010, restoring depleted fisheries by

2015, halving the proportion of people without access to clean water or sanitation by 2015 and, by 2020, producing and using only those chemicals that do not harm human health or the environment.

The CGIAR is ready to confront the complex challenges of the present and future. Our ongoing reform program is yielding benefits. The inclusion in 2002 of Israel, Malaysia, Morocco and the Syngenta Foundation for Sustainable Agriculture considerably strengthened the CGIAR alliance. A new Science Council is being established to ensure that CGIAR science continues to meet the highest international standards for quality and relevance. The new Challenge Programs are broadening research partnerships, aligning CGIAR research more directly for achieving Millennium Development Goals. Finally, streamlined governance and nimbler decision-making are providing value to CGIAR stakeholders, while increasing the overall effectiveness of the System. Highlights of the efforts by CGIAR Centers to design and implement programs consistent with the summits' priorities are spelled out in this annual report. Additionally, the Challenge Programs, which the CGIAR has embraced to target issues of global significance, received recognition at the Johannesburg Summit as an innovative and effective form of development partnership. Challenge Programs are conceived and fleshed out in collaboration with scientists in the national agricultural research institutes of developing countries, advanced research institutes, and other stakeholders representing the public and private sectors, civil society and farmer groups.

The CGIAR has approved two Challenge Programs as pilots; Water and Food is already in development, as is Biofortified Crops for Improved Human Nutrition. A third program, Unlocking Genetic Diversity in Crops for the Resource Poor, is under review. A fourth, led by the regional Forum for Agricultural Research in Africa, has been endorsed for full preparation.

> AGRICULTURAL GROWTH IS THE STARTING POINT OF ECONOMIC GROWTH IN MOST DEVELOPING COUNTRIES

And so we move on, from words to action. We thank all those who have already joined the CGIAR and warmly welcome new partners who are considering joining the alliance. Together, we can turn even the most difficult challenges into creative opportunities for science-based solutions that have lasting, beneficial impacts on people's lives and our environment.

Ian Johnson
CGIAR Chairman

Francisco J.B. Reifschneider
CGIAR Director

Year of the Summits 2002: The Third Phase

by Nitin Desai, Secretary-General, World Summit on Sustainable Development

The summits and conferences of the last decade succeeded in making socioeconomic development a central concern of national and international policy frameworks. There was a global consensus to focus policies related to finance, investment, trade and the environment on improving the plight of the poor. This could be called the first phase of the process of building a global consensus on the shared objectives of sustainable development. The second phase was the Millennium Summit, which turned this consensus into goals and time-bound frameworks backed by the highest level of political commitment.

The third phase started in 2002, which featured three important meetings: the International Conference on Financing for Development, in Monterrey, Mexico, in March; the World Food Summit: five years later, in Rome, Italy, in June; and the World Summit on Sustainable Development, in Johannesburg, South Africa, in August and September. These were preceded by another significant meeting, that of the World Trade Organization (WTO) in Doha, Qatar, in November 2001, which led to the launch of a development trade round and marked a turning point in the trade liberalization. The third phase — beginning with the Year of the Summits — in some ways signaled the move from promise to performance, from words to action.

While the three phases are somewhat diffuse, there are some significant features that signify new steps toward the goal of sustainable development and poverty eradication. The decade of the UN summits and conferences started in June 1992 with the Conference on Environment and Development in Rio de Janeiro, Brazil, which set the stage for lending visibility and credibility to efforts to improve the plight of the poor while conserving the natural resource base. This decade achieved, among other things, three main objectives. First, it brought the issues of socioeconomic development and environmental protection to the forefront of the multilateral agenda. This also helped in paving the way for forging close cooperation between the United Nations and the Bretton Woods institutions (World Bank and International Monetary Fund). Second, the decade provided a substantive framework for international cooperation and refining a multilateral system of finance and trade. Today, the goals of international trade negotiation can no longer be framed simply in terms of liberalization but must also consider their contribution to promoting development and reducing disparities among nations. Third, the decade engaged civil society, activist groups, businesses, cooperatives, trade unions and other relevant actors on an unprecedented scale.

> THE YEAR OF THE SUMMITS SIGNALED THE MOVE FROM PROMISE TO PERFORMANCE, FROM WORDS TO ACTION

The second phase of this process was the consolidation of these efforts. At the turn of the millennium, the Millennium Summit in New York achieved this goal by providing a fairly comprehensive development agenda with well-defined goals and targets. The Millennium Development Goals have proved to be very effective tools for galvanizing the world community into action.

Against this backdrop, the three summits of 2002 and the WTO meeting in Doha set the stage for the third phase, which is the phase of implementation. How did these summits contribute to setting in motion the era of action and implementation?

Doha set the stage by putting development at the center of the trade negotiations. There were clear commitments to giving priority to the interests of developing countries and to realizing the benefits of trade liberalization envisaged at the time of the Uruguay Round of trade negotiations. The promise of a development round of trade negotiations made at Doha not only recognized the crucial role of trade in development, but also reaffirmed the importance of a multilateral approach to trade liberalization. However, progress in realizing the commitments has not been very encouraging, and the upcoming meeting of the WTO in Cancún, Mexico, in September 2003 holds the key to maintaining momentum in this third phase of our work.

The results of the International Conference on Financing for Development are groundbreaking in more ways than one. The secretary-general of the United Nations referred to the Monterrey Conference as a "turning point in the quest for economic and social progress, which has been high on the agenda of the UN from its earliest days." Monterrey marks a sea change on the macroeconomic policy front, in particular with respect to the relationship between the United Nations, international financial institutions and the WTO. These institutions are all working toward one end, which is coherence and consistency between development goals and the objectives to be achieved through macroeconomic policies. Moreover, the *Monterrey Consensus* provides a new compact between developed and developing countries based on partnership and mutual responsibility.

The Monterrey Conference also resulted in pledges by donors to increase development assistance that could amount as much as $12–13 billion in new, additional resources by 2006. This is a major step forward in terms of providing the means for achieving the agreed ends for sustainable development and poverty eradication.

While Doha and Monterrey dealt with the macroeconomic policy framework for pursuing development, the World Food Summit: five year later and the World Summit on Sustainable Development focused on programmatic issues of development *per se*.

The World Food Summit: five years later focused primarily on implementing the central target of the 1996 World Food Summit: to halve the number of undernourished and hungry people by no later than 2015. The summit renewed its political commitment for achieving this target and pledged to increase public investment in agriculture and rural development for the Food and Agricultural Organization's new Anti-Hunger Program launched in June 2002. This recommitment to alleviate hunger was a significant contribution toward achieving the Millennium Development Goals.

The World Summit on Sustainable Development addressed the whole question of ends and means with special focus on implementing the Rio vision on sustainable development, as it has been enriched by the subsequent decade of conferences. It added a new, practical dimension to the Rio vision by specifying targets and timetables in critical areas. A 10-year framework of programs to change unsustainable patterns of consumption and production includes specific programs on chemicals, sanitation, energy, biodiversity and fisheries. Agricultural productivity is one of the main areas of focus, as it is key to achieving the Millennium Development Goals.

Johannesburg also made another important groundbreaking contribution to the move from words to action, and that was the launching of partnerships. These partnerships mark a new way of involving major groups and other relevant actors in the process of implementation. The Rio Conference opened the door for civil society, and the Johannesburg Summit has paved new avenues for practical cooperation among all actors.

Johannesburg has also generated new momentum for achieving concrete goals in some critical areas by involving the actors who really matter on the ground. A partnership like the CGIAR could serve as a model for launching initiatives in the areas of energy, water and sanitation.

The Year of the Summits has created new opportunities for realizing the vision that came out of the decade of the summits. Availing ourselves of these opportunities demands enhanced global cooperation, strengthened mutlilateralism and broad-based participation.

The FAO–CGIAR Partnership: Together Against Hunger, Poverty and Environmental Degradation

by Jacques Diouf, Director-General, Food and Agriculture Organization of the United Nations

The roles that agricultural research and rural development play in alleviating hunger and poverty are recently gaining ever greater attention and momentum. International events such as the World Food Summit in 1996 and the World Food Summit: five years later (WFS:fyl) in 2002 made important contributions in this respect. The WFS:fyl called on the Food and Agriculture Organization of the United Nations (FAO), in conjunction with the CGIAR and other international research institutes, to advance agricultural research. Proven new technologies, including biotechnology, should be introduced in a safe manner and adapted to local conditions to help improve agricultural productivity in developing countries.

The aim of both the WFS:fyl and the World Summit on Sustainable Development (WSSD), as documented in the *Johannesburg Plan of Implementation*, is to eliminate the suffering of extreme poverty. This is the major challenge facing humanity and the *sine qua non* of sustainable development. Both events recognized the importance of agriculture in that effort. Sustainable agriculture, rural development and forest management, integrated land and water resource management, mountain development, and conservation of agrobiodiversity emerged as key contributions to poverty reduction and rural livelihoods.

FAO cooperates with the CGIAR and its 16 Centers to achieve common development goals. That cooperation not only supports general science, but is also of a specific, substantive nature. A continuing goal of both organizations is to achieve and maintain the highest possible standards in the quality and relevance of science for development. The former Technical Advisory Committee (TAC) of the CGIAR, soon to be replaced by the new Science Council, contributes to ensuring the relevance and quality of science in the System and advises on strategic scientific issues relevant to its goal and mission. FAO has hosted the Secretariat of TAC for many years and interacted closely with it on a number of activities.

Information is a powerful weapon against poverty and hunger. FAO's World Agricultural Information Centre and the CGIAR have developed the Information Finder service to help disseminate CGIAR research outputs, documentation and a variety of electronic data through the FAO Web pages.

> THE FOOD AND AGRICULTURE ORGANIZATION AND THE CGIAR ARE DEEPLY ENGAGED TOGETHER IN A BROAD AND VARIED SET OF ACTIVITIES RESPONDING TO SUMMIT PRIORITIES

Attacking poverty requires solid knowledge of its geographic distribution. Together with the United Nations Environment Programme and the CGIAR, FAO initiated a poverty-mapping project to address this problem, introducing a spatial component to poverty statistics by incorporating geographic information systems and spatial analysis tools. Spatial parameters are also important for understanding correlations of poverty with environmental factors.

The Global System for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture is another

area of major collaboration. It includes joint monitoring of the *Global Plan of Action*, information sharing and early warning systems. The *International Treaty on Plant Genetic Resources for Food and Agriculture* has posed a serious challenge to both FAO and the CGIAR. Collaboration also includes crop improvement and integrated pest management programs.

> COOPERATION BETWEEN THE FOOD AND AGRICULTURE ORGANIZATION AND THE CGIAR NOT ONLY SUPPORTS GENERAL SCIENCE, BUT IS ALSO OF A SPECIFIC, SUBSTANTIVE NATURE

FAO is working closely with a number of Centers on initiatives such as the Global Conservation Trust, Global Cassava Development Strategy, and International Rice Commission, whose secretariats are hosted by FAO. And FAO is the lead agency for the International Year of Rice 2004. A number of the Centers also participate in FAO's Special Programme for Food Security.

FAO is a partner with several Centers in the Comprehensive Assessment of Water Management in Agriculture and is, like the International Water Management Institute of the CGIAR, one of the 10 members of the steering committee of the Dialogue on Water, Food and Environment, which aims to find solutions to the worsening problem of water scarcity and competition for this vital resource. FAO units are in continual contact with Centers for specific activities dealing with irrigation technologies and planning, groundwater use in agriculture, rice-fish farming and gender issues.

In short, FAO and the CGIAR are deeply engaged together in a broad and varied set of activities responding to the call of the WFS:fyl and the WSSD to advance agricultural research and technology — and their use to build a more food-secure world. The already extensive cooperation between FAO and the CGIAR will likely continue to grow in the future.

The New Morocco–CGIAR Alliance: High Expectations to Meet Pressing Needs

by Hamid Narjisse, Director, National Agricultural Research Institute, Morocco

Morocco is currently facing social and economic challenges that have arisen as a result of the country's commitment to expanding its market economy and forging free trade agreements with many foreign partners. These multifaceted challenges, while planting the seeds of progress and more competitive production systems, are also a source of concern to policymakers. This is because they threaten the nation's food security and social stability and cohesion, especially in the poor rural poor communities that rely primarily on agriculture for their livelihood.

Agriculture continues to provide the main source of income for over 40 percent of Moroccans and contributes on average 13 percent to the annual gross national product. While the Moroccan agricultural export sector is in general adequately developed, many Moroccan farmers are still small holders dependent upon very low-performing farming systems, mostly in marginal areas. These systems generate enormous problems for poverty alleviation and environmental conservation.

Central to meeting the formidable challenges facing Moroccan agriculture is to increase its competitiveness. This will require new technologies, new partnerships and effective delivery systems to improve productivity and rural income and to manage natural resources in a sustainable way. As the mandate of the National Agricultural Research Institute (INRA by its French acronym) is to generate, adapt and validate technologies related to crops and livestock, it is well positioned to lead the battle to raise productivity in Moroccan agriculture, enhance food security and reduce poverty in rural areas.

To enhance its effectiveness — and to make the most of Morocco's comparative advantages, and those of its partners, to help the country achieve international levels of agricultural productivity, quality and efficiency — INRA is seeking partnerships with international agricultural research organizations including CGIAR-supported Centers. INRA has already enjoyed fruitful and mutually beneficial collaborations with the International Center for Agricultural Research in the Dry Areas, International Maize and Wheat Improvement Center, International Plant Genetic Resources Institute, and International Service for National Agricultural Research. Through its new membership in the CGIAR, it aims to strengthen existing relationships and establish new ones with other Centers that share common interests.

INRA-Morocco is dedicated to expanding its participation in the global system for agricultural research. Morocco's diversity of farming systems and ecosystems, and its rich biological diversity, offer a wealth of research possibilities and constitute, without doubt, a significant research asset. The Moroccan scientific community is willing to share its resources with its CGIAR partners and to engage in collaborative research programs. INRA strongly believes that the time is right for a concerted effort to develop efficient South-to-South and South-to-North research collaboration with the aim of launching a new green revolution and thereby expanding opportunities for poor farming communities. The CGIAR alliance can play an instrumental role in catalyzing and facilitating progress toward achieving this ambitious objective.

Board Chairs and Center Directors: Close Consultation Ensures Understanding and Trust

The Committee of Board Chairs is a valuable source of wisdom, experience and advice for the CGIAR System. It acts as custodian of the System's resources and provides the framework through which constructive changes in strategies and policies are legitimized and implemented. The Committee is also a catalyst to ensure the necessarily diverse approaches of the Centers align along uniform principles and goals.

As arguably the leading agent of change responsible for effectiveness and efficiency in the System, the Committee of Board Chairs actively contributed to the continuing CGIAR reform program throughout 2002. The Committee commenced reviewing the selection processes of board members with the aim of securing the best possible mix of skills and experience; reviewing Center grievance procedures and developing model guidelines; and analyzing changes occurring in the System while assessing opportunities for improving Center effectiveness and facilitating cooperation among Centers and partner–Center linkages.

On all these issues we work in close consultation with the Center Directors Committee to ensure that understanding and trust between management and governance is encouraged across the System. The Committee also offers advice to the chairman and director of the CGIAR through regular contact and correspondence. The roles and responsibilities of Committee of Board Chairs are outlined in detail on the CGIAR Web site at www.cgiar.org.

While the Centers continue to respond to change and the challenges that lie ahead, the Committee monitors developments to ensure that the diversity of mandates and operations among the Centers is not threatened. The synergies that are now emerging through the Challenge and Systemwide Programs are the direct result of the diversity that exists among Centers. Only by maintaining diversity can synergies create new results and impacts.

And, finally, in this year of international summits, many of the Centers made major contributions to the enlargement of international policy on agriculture and poverty. The diversity of mandates, skills and capacities that exists across the CGIAR Centres and their partners equips them to make a major impact wherever knowledge is needed to create solutions to the problems of poverty, hunger and environmental degradation. The challenge ahead is for the Centers to transform the words generated by the summits into cohesive action.

John Vercoe, Chair, Committee of Board Chairs

In 2002, the Center Directors Committee (CDC) recognized the fast pace of reform in the CGIAR System and emphasized improving efficiency and effectiveness in its own operations. It embarked on a path of renewal to develop more strategic approaches to serving the vision, goals and operating ambitions of the System.

The CDC recognized that each of the major pillars of reform in the CGIAR means new ways of doing business for the CDC and the Centers.

- The creation of the Executive Council (ExCo) in 2001 has sped up CGIAR processes, and the CDC is learning to contribute more effectively as a member of ExCo.
- The Challenge Programs are elevating the game in terms of the research program and bringing about a leap in the extent and complexity of partnerships linking the Centers, national agricultural research systems, civil society and the private sector. The Centers are developing new codes of conduct to make explicit how they will operate in Challenge Programs, including addressing the twin challenges of competition and cooperation that such research programs demand. The Centers are also addressing the need for new and additional sources of funding and program support services for such areas as Challenge Program intellectual property rights (IPR), increasingly formal partner relations, research management, financing and public awareness.
- The System Office presents the Centers with opportunities and some housekeeping matters. The CDC recognizes that it must create greater synergy among the units for which it holds sole or joint responsibility. The CDC will need to define and refine its role in the governance of the System Office and will be an active partner in its longer-term development.
- The CDC trusts that defining the shape of the emerging Science Council will clarify what types of strategic changes it will require of the Centers.

The CDC reiterated the importance of resource mobilization and public awareness to the future success of the System and supports developing a coordinated, unified strategy in these areas. The CDC will look into the need for more effective information management and communication, and it will examine the transition to wider ownership of resource mobilization and public awareness within the CGIAR System.

Systemwide and ecoregional programs have been around for about a decade, and many have struggled to get basic support. Thus the CDC was delighted to receive in 2002 the opportunity to propose that portions of the World Bank contribution to CGIAR core funding be allocated to support some of the programs.

> EACH OF THE MAJOR PILLARS OF REFORM IN THE CGIAR MEANS NEW WAYS OF DOING BUSINESS

Among the more contentious and often polarized issues touching the work of all Centers, albeit in different ways, is the development and use of genetically modified organisms. For those Centers already working on transgenic products targeted to contribute to poverty alleviation, these issues touch on their freedom to operate their complete program. The Centers also have interests regarding the role of genetically modified organisms in policy analysis and advice (for example in respect of trade, food safety, biosafety and standards) and the question of IPR in transgenic work. Finally, the Centers must assess the different risks and benefits that may apply to genetically modifying different types of organisms, such as livestock, fish and trees, or to using genetic modification to produce vaccines.

The CDC is therefore working on how best to present a common position that also recognizes the different ways in which the issues touch each Center. The CDC stresses that the Centers not only have a responsibility to ensure that appropriate and safe biotechnology is directed to address the mission of the CGIAR but also that an important part of this responsibility is to keep the products and methods in the public domain.

The CDC stresses the growing importance of Centers' actively managing IPR to keep results available in the public domain. In addition to providing continuing support to the Central Advisory Service on Intellectual Property, several Centers have employed or regularly use IPR specialists. The Centers recognize that the use and establishment of IPR will be a central issue demanding attention in the successful implementation of the Challenge Programs.

Adel El-Beltagy, Chair, Center Directors Committee

The Future Harvest Centers of the CGIAR

A Progressive Science Program for Sustainable Rural Livelihoods

The World Summit on Sustainable Development in Johannesburg signaled the return of agriculture to a central place in development programs. Despite debate on such contentious issues as the effect agricultural subsidies in industrialized countries have on trade opportunities for the developing world, the summit's message was clear: Sustainable agriculture is vital for achieving food security, reducing poverty and protecting the environment, and it is closely linked to other high-priority issues such as conserving biodiversity and water resources.

> EXPERIENCE SHOWS THAT IMPROVED CROPPING SYSTEMS DEVELOPED WITH SUPPORT FROM CGIAR CENTERS CAN SERVE AS ENTRY POINTS FOR BROADER ECONOMIC DEVELOPMENT

The International Center for Tropical Agriculture (CIAT by its Spanish acronym) pursues a progressive program of research and development that helps farmers build sustainable livelihoods, based on competitive agriculture, healthy agroecosystems and rural innovation. In close collaboration with national institutions, nongovernmental organizations and the private sector, Center scientists employ participatory methods that offer farmers an active role in building rural agroenterprises, managing soil, water and pests, and improving cropping systems. By pursuing its progressive program across Africa, Asia and Latin America, CIAT also creates unique opportunities for South–South exchanges of technical and social innovations in agriculture.

Experience shows that improved cropping systems developed with support from CIAT and other CGIAR Centers can serve as entry points for broader economic development. Through postharvest handling and processing, for example, farmers and local entrepreneurs can add value to agricultural produce and increase their income. To help farmers learn to compete more effectively in growth markets, CIAT has developed an innovative approach toward assisting agroenterprise development.

In this approach, local interest groups are formed to identify and analyze new market opportunities, seize the most promising options through integrated projects, and reinforce the support services needed for agroenterprises to prosper. One of those services is timely access to information about prices, technologies, quality standards and so forth. To help build local capacity for creating knowledge and providing information services, CIAT is exploring the potential contribution of new information and communications technologies delivered through rural community telecenters, in combination with traditional media.

As new agroenterprises emerge, farmers should have stronger incentives to invest in restoring the soil, water and biodiversity on which rural livelihoods depend. A central challenge is to devise new technologies and approaches that encourage and enable farmers to respond to these new incentives. One recent initiative to meet this challenge is the Alliance for Integrated Soil Fertility Management, jointly established by CIAT's Tropical Soil Biology and Fertility Institute and the World Agroforestry Centre (ICRAF). By combining the research-and-development experience, networks and partnerships of these international institutions, the alliance offers farmers, especially in Africa, new hope for achieving sustainable rural livelihoods.

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

Dialogue Leads to Partnerships in the World's Forests

The Center for International Forestry Research (CIFOR) has played a leading role in establishing two major partnerships that combine governments, businesses and civil society in promoting the sustainable development of the world's forests. The Asian Forest Partnership and the Congo Basin Forest Partnership are new agreements sealed in 2002 that work to protect these forest regions and the people who depend on them.

Asian forests continue to decline, ruining livelihoods and hampering economic growth. Illegal logging persists, fires spread in previously resistant areas, exotic pests impede natural regeneration, and degraded forests languish.

Drawing on its long experience in working with forest people, CIFOR joined The Nature Conservancy and the governments of Indonesia and Japan to lead the new Asian Forest Partnership, which includes 12 governments, eight intergovernmental organizations, the Food and Agriculture Organization of the United Nations, the International Tropical Timber Organization, and several nongovernmental organizations. The Partnership aims to address the urgent issues of good governance and forest law enforcement, control of illegal logging and forest fires, and reforestation of degraded lands in Asia. It will operate by increasing cooperation among the governments and organizations involved. Much of the work under discussion will build on the foundations of CIFOR's earlier work in the region.

The tropical forests of the Congo Basin in Africa are among the last large areas of primary forest left in the world, second only to those of the Amazon Basin. These forests support rare and endangered animals and plants, as well as providing food, materials and shelter for millions of people in Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of Congo, Equatorial Guinea and Gabon.

Bushmeat hunting, unsustainable logging and political instability threaten the forests of the Congo Basin, prompting CIFOR to join discussions in 2002 that led 29 governments, international organizations, and environmental and business interests to form the Congo Basin Forest Partnership. The partners are discussing a long-term plan to conserve the natural resources of the Congo Basin forests by monitoring and evaluating forest ecosystems, creating protected forest areas, strengthening human capacity and participatory management, assessing the worth of the environmental services offered by forests, and managing harvested forests.

> THE ASIAN FOREST PARTNERSHIP AND THE CONGO BASIN FOREST PARTNERSHIP WORK TO PROTECT THESE FOREST REGIONS AND THE PEOPLE WHO DEPEND ON THEM

Both partnerships are Type 2 outcomes (public–private collaborations) of the 2002 World Summit on Sustainable Development designed to maximize impact. As examples of words to action, they are major developments in their regions that also serve as global precedents showing how dialogue can generate augmented resources and higher-level commitment from partners and donors.

Connecting People to Save African Lives and Livelihoods

The International Maize and Wheat Improvement Center (CIMMYT by its Spanish acronym) began devising its new long-term strategy in 2002. The strategy will help CIMMYT translate the values endorsed by the summits of 2002 into tangible improvements in people's lives. A clear message from the summits is that there is no single path to sustainable development. What are the implications of this message for CIMMYT, a global institution seeking to effect change at the local level? Can any of our current partnerships signal future directions?

For 8 years, SoilFertNet — a collective effort to improve soil fertility on small landholdings in southern Africa — has assembled a mosaic of approaches and resources to address a mosaic of local development needs and opportunities. Developed with the Rockefeller Foundation, SoilFertNet is shorthand for the CIMMYT-coordinated Soil Fertility Management and Policy Network for Maize-Based Farming Systems in Southern Africa (www.soilfertnet-southernafrica.org). The network has developed, tested and extended best-bet soil fertility practices — more efficient use of mineral fertilizers as well as legume rotations, green manures and other organic approaches — through partnerships with research and extension services, farmer groups, and nongovernmental organizations in Malawi, Mozambique, Zambia and Zimbabwe. Beyond narrowly improving soil fertility, these practices expand biodiversity in cropping systems, rendering them more productive and resilient to stresses like drought and disease, and so broaden livelihood opportunities. Financial and risk analyses have demonstrated the potential profitability and sustainability of best-bet options.

Regarding maize in Malawi and soybeans in Zimbabwe, national commodity task forces have focused resources, partnerships, and the attention of government officials and policymakers on soil fertility and the dissemination of best bets. Members developed specific fertilizer recommendations for hybrid maize in Malawi, for example, and the country's Ministry of Agriculture and Irrigation officially released practices for improving soil organic matter. Members also provided technical input for a multi-donor "starter pack" program for farmers nationwide, which increased maize production and — in a year of acute hunger — saved lives.

Other mechanisms for providing knowledge and inputs also fostered the use of best bets. Farmer-participatory co-learning opportunities are a widespread feature of SoilFertNet. For example, almost 4,000 farmers in Chihota, Zimbabwe, have learned about new soil fertility practices, and more than 2,300 used one or more of them. SoilFertNet members also trained private input dealers to offer appropriate seed, fertilizer and lime and to advise smallholders according to their particular needs. This training helps rural agribusinesses transfer and support soil fertility technologies. Finally, network members assess constraints to adoption and, when necessary, promote policy changes.

An enlightened funding partner has provided extended support for the network and mobilized additional research resources for members. Current membership surpasses 200, mostly from the region but also from the rest of Africa and the world. Success comes from design based on local circumstances. The network's integrative approach encourages continued learning and efficiency and makes it a valuable model for CIMMYT to study as it plans for the future.

Centro Internacional de la Papa (CIP)
Headquarters: Lima, Peru | www.cipotato.org

New Tools to Crack the Hard Poverty

In its battle against poverty, the International Potato Center (CIP by its Spanish acronym) is deploying new analytical tools, longstanding partnerships and the indispensable collection of crop biodiversity that it holds in trust.

"If we want to crack the really hard poverty in marginal environments," explained Pamela Anderson, CIP's deputy director general for research, "the next logical step in our research agenda is to move from our focus on the field to a broader view of the systems in which those fields are embedded." To this end, CIP is developing new analytical and modeling tools to improve its effectiveness in complex, dynamic systems, in particular in the mountains that are crucial to the planet's environmental health.

"The Rio Summit generated the political will to undo hundreds of years of mismanagement and neglect," observed Hugo Li Pun, CIP's deputy director general for corporate development. "Ironically, at the time we didn't really have the tools to act." The new tools now available will help researchers judge the potential benefits of technologies before committing resources to them. For example, CIP social scientists, working last year in tandem with geographic information systems (GIS) specialists and crop scientists in Africa, used satellite imagery and GIS software to calculate the potential of improved crop varieties to alleviate malnutrition in the East African highlands. "In the past, it might have taken years to gather that kind of information, if it could have been done at all," Li Pun added.

Meanwhile, CIP's longstanding partnership called Vitamin A for Africa battled devastating nutrient deficiency by disseminating vitamin A-rich orange-fleshed sweet potatoes through the Regional Potato and Sweet Potato Improvement Network for East and Central Africa (PRAPACE by its French acronym). Since its inception 20 years ago, PRAPACE has invested heavily in rural seed production in an effort to deliver improved varieties where they are needed most. In 2002, more than 1.2 million farmers participated in PRAPACE seed programs through hundreds of nongovernmental and community-based organizations.

> NOW RESEARCHERS CAN BETTER JUDGE THE POTENTIAL BENEFITS OF TECHNOLOGIES BEFORE COMMITTING RESOURCES TO THEM

The heart of CIP is the root and tuber collection it holds in trust. This has allowed the Center to respond quickly and effectively to the growing threat of late blight in the potato's center of origin. Until recently, late blight was almost unknown in the very high Andes, but now, reported breeder Maria Scurrah, "The pathogen is moving up the mountainside." CIP scientists are using materials from the genebank to develop new disease-resistant, high-yielding varieties. These new B1 potatoes, as they are known, also mature rapidly, thereby reducing the time they are exposed to the disease in farmers' fields. Meanwhile, more than 20 developing countries — including major potato producers such as China, Kenya and Peru — are releasing late blight-resistant potatoes from an earlier CIP population known as B3.

Global Cooperation Bears Fruit

Global efforts such as the World Summit on Sustainable Development (WSSD) and the United Nations Convention to Combat Desertification have fostered regional and interregional collaboration focused on such issues as globalization, international water rights and climate change. These efforts are gaining the momentum needed to meet the challenges of alleviating hunger and poverty and keeping the environment healthy and productive.

In 2002, the International Center for Agricultural Research in the Dry Areas (ICARDA) helped national agricultural research systems (NARS) in Central and West Asia and North Africa in setting their priorities. This was achieved in collaboration with the Association of Agricultural Research Institutes in the Near East and North Africa; Central Asia and the Caucasus NARS Forum; NARS leaders; farmer union representatives; nongovernmental organizations; and other civil society organizations. The objective is to capitalize on the comparative advantage of each NARS for the benefit of the entire region, while integrating regional research efforts with the CGIAR agenda.

In cooperation with subregional organizations and national programs, ICARDA has prepared a comprehensive inventory of water resources in West Asia. The results include a review of on-going efforts to improve the management of scarce water resources. The Center is also implementing projects to address water salinity and the need to improve mountain agriculture and rangelands. Local communities implement each rural development project in collaboration with ICARDA and its NARS partners, melding local knowledge with the best of modern agricultural and environmental science.

In Yemen, for example, ICARDA is working with local partner agencies and farmers, male and female, to promote growing vegetables in moisture-conserving plastic houses with drip irrigation, and so intensify agriculture and increase income. All of the materials for building the structures and irrigation systems are available locally and easily assembled. By making good use of limited water resources, Yemeni farmers are returning the previously degraded terraces to profitability and so convincing young people to stay on the land, instead of migrating to urban areas.

> COLLABORATIONS MELD LOCAL KNOWLEDGE WITH THE BEST OF MODERN AGRICULTURAL AND ENVIRONMENTAL SCIENCE

Raising livestock is another important livelihood strategy in arid highlands that is limited by subsistence practice. ICARDA is working with herders to develop innovative and practical ways to make high-quality feed more available and affordable and to increase livestock productivity. Among the technologies being improved and promoted is on-farm feed-block production, which uses agricultural waste to ensure year-round feed availability. The Center is also working to improve animal health and profitability, in part by promoting small-ruminant dairy production. In Central Asia, where farmers traditionally raise sheep only for wool, pelts and meat, the adoption of milking, with technical backstopping from ICARDA, has brought immediate increases in farm-family income. And, because women handle most livestock tending, this work is helping them find employment opportunities both on and off the farm.

These are just a few examples of how ICARDA is helping to ensure that global cooperation bears fruit in the form of improved nutrition and income for the rural poor, while enhancing the natural resource base.

Partnerships Against Drought

The challenge for the CGIAR is fostering research *for* development — applying science to improve livelihoods at the local level. No single institution can manage this on its own, so the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) adopts an R-for-D approach built on partnerships with a range of organizations: national research and extension services, universities, regional bodies, government policymakers, nongovernmental organizations, farmer organizations, development investors, the private sector, and advanced research centers inside and outside the CGIAR.

> MAKING FAMILIES MORE FOOD SECURE REDUCED THE FOOD-AID BURDEN ON GOVERNMENTS AND OTHER AGENCIES ACROSS SOUTHERN AFRICA

Talks with national stakeholders set goals and targets. A consultative process, in which each stakeholder group provides inputs, identifies priorities and develops project designs and budgets. Research is planned at stakeholder meetings and monitored by stakeholder representatives. R&D networks involving many groups disseminate research results, ensuring that good technology spreads quickly.

The most important stakeholders are the farmers themselves. That is why ICRISAT promotes farmer-participatory research and extension. Farmer involvement enhances adoption rates and helps scientists better understand farmers' priorities and decision-making processes. This in turn ensures that the next generation of technologies is even more relevant to small-scale farmers.

Do partnerships really work? Consider ICRISAT's sorghum and millet research targeted specifically at small-scale farmers in drought-prone areas of southern Africa. To date, these partnerships have led to the release of 49 improved sorghum and pearl millet varieties in eight countries. The new varieties occupy huge areas, ranging from 15 to 50 percent of the countries' total sorghum/millet area. The varieties have been successful largely because they address the farmer's biggest concern: drought. By maturing 3 to 6 weeks earlier than traditional varieties, they escape end-of-season drought, which is common throughout the region. There is usually a harvest — and food for the family — even in a year when other crops fail.

During the 1991/92 drought, when crops failed in most of southern Africa, ICRISAT varieties gave twice the yield of local varieties. Last season, same story. Early-maturing varieties developed by ICRISAT and its partners made tens of thousands of families more food secure and reduced the food-aid burden on governments and other agencies across the region.

Food and health are beyond price, but can we estimate how much the benefits of ICRISAT's research are worth? Studies conducted jointly by ICRISAT and national partners show the new sorghum and pearl millet varieties increasing household income across the region by at least $10–15 million per year, with the most benefit accruing to the poorest families, which are the ones growing the crops. Beneficiaries number over 1.5 million households, or close to 9 million people — one-fourth of the population of southern Africa's semi-arid tropics.

These accomplishments align with and support the emphasis on agriculture, put forward at the World Summit on Sustainable Development in Johannesburg, as an essential step in achieving sustainable development.

First Setting Summit Goals, Then Achieving Them

The international community met twice in 2002 to commit itself to accelerating sustainable social and economic development. Building on the work of earlier summits, signatories resolved to reduce hunger and poverty and improve the lives of poor people.

Research from the International Food Policy and Research Institute (IFPRI) influenced the setting of both summits' goals. Based on the Institute's projections showing continued impoverishment and hunger if governments conducted business as usual, IFPRI's 2020 Vision Initiative asked for bold goal-setting at a time when complacency prevailed.

> SCIENCE-BASED KNOWLEDGE OF WHAT WORKS HELPS POLICYMAKERS SET PRIORITIES AND INVEST LIMITED RESOURCES WISELY

IFPRI's groundbreaking model of international food and water markets, showing the future world food situation under various development scenarios, helped raise awareness of the scope of hunger and poverty and pointed the way toward realizing summit resolutions. A report IFPRI published in 2002 with the International Water Management Institute projects that by 2025 water scarcity will likely slash annual global food production by 350 million tons. This could cause prices to skyrocket and significantly increase malnutrition. The analysis shows that the World Summit on Sustainable Development goal of halving the proportion of people without access to safe water and sanitation by 2015 requires governments to redirect their water policies.

What specific policies and actions will be most effective in achieving summit goals? IFPRI's science-based knowledge of what works helps policymakers set priorities and invest limited resources wisely. Its research on gender and nutrition, for instance, has found that investing in and empowering women pays enormous dividends. If women and men had equal status in South Asia, the region would have 13.4 million fewer malnourished children under 3 years old. Raising women's status today is a powerful force for improving the health, longevity, mental and physical capacity, and productivity of the next generation.

Findings in China and India show that resources devoted to education, roads and agricultural research are the most effective in reducing rural poverty. IFPRI researchers have also found that public investments for farmers in areas with adverse soil or climatic conditions often make bigger dents in poverty and generate higher social returns than investments in fertile areas. IFPRI is analyzing successes in African agriculture that countries in the region can build on, examining the reciprocal relationship between the AIDS epidemic and food security, and synthesizing extensive research on actions southern African nations can take to recover from famine and prevent its recurrence.

By providing a road map out of poverty and recommending concrete actions to be taken at the local, regional, national and international levels, IFPRI supports summit goals and the actions needed to achieve them. IFPRI disseminates for free the knowledge its research creates and builds capacity among researchers, policymakers, development practitioners and opinion leaders in developing countries through collaboration, extensive training courses, policy networks, conferences and publications.

From policy problem to science-based analysis to participatory solution to action, IFPRI offers expertise and information to help the world keep its resolution to create a better life for all by 2015 — and beyond.

A Decade of Progress Against Cassava Mosaic Disease

Food security is necessary for development, so when a staple food source is almost totally destroyed by crop disease, hope for development dies as quickly as the food supply itself. That is what happened when a previously unknown virus caused a severe outbreak of cassava mosaic disease (CMD) in East Africa not long before the first Earth Summit in Rio de Janeiro in 1992.

CMD has been a chronic constraint on cassava for more than a century. The virus group that causes the disease routinely reduced African cassava production by 15–25 percent. Then, in the late 1980s, farmers in central Uganda began to suffer total crop devastation from CMD. The disease was associated with the occurrence of a novel recombinant virus transmitted by the whitefly *Bemisia tabaci*, moving outward in an epidemic front.

> VIRTUAL IMMUNITY TO THE VIRUS WENT HAND-IN-HAND WITH IMPROVED POSTHARVEST QUALITIES AND EXCELLENT FARMER ACCEPTANCE

By the second half of the 1990s, the epidemic had spread to Kenya (1996), Sudan (1997) and Tanzania (1998). To address this regional pandemic, the International Institute of Tropical Agriculture (IITA) set up a regional program for managing the disease outbreak. The United States Agency for International Development, Danish International Development Agency, Department for International Development (UK), Gatsby Charitable Foundation, and Rockefeller Foundation supported establishing a network of partners and launching a multifaceted emergency program. Extensive surveys throughout the Lake Victoria zone of East Africa established which areas were most affected, how quickly the disease was spreading, and which areas were immediately threatened.

These efforts were vitally important in helping researchers target control efforts and forecast the pattern of pandemic expansion.

Control efforts were based on deploying host plant resistance. A major breakthrough in IITA's breeding program resulted from new sources of CMD resistance being identified in Nigerian landraces and successfully combined with the resistance of earlier materials. Newly developed germplasm also broke what had been a yield plateau, and in many cases virtual immunity to CMD went hand-in-hand with improved postharvest qualities and excellent farmer acceptance. IITA encouraged the establishment of open quarantine sites in Burundi, eastern Democratic Republic of Congo, western Kenya, Rwanda and northwestern Tanzania, which served as conduits for introducing elite clones from the regional germplasm-development program at Serere, Uganda.

Getting these materials into farmers fields as quickly as possible meant piloting a novel fast-track varietal testing approach in which new clones were evaluated for a year in quarantine, rapidly multiplied on station, then directly offered for participatory evaluation in farmers' fields at sites covering a diverse range of agroecologies. The results have been spectacular. In Uganda, cassava production hit a record high of almost 5 million tons in 2001, up from the low of just over 2 million tons at the worst of the epidemic in 1994.

IITA now has relief, control and prevention programs in other African countries under threat, using the same approach that successfully turned around bleak prospects for development in the cassava-growing areas of East Africa in the decade between Rio and Johannesburg.

Ridding Livestock of Disease to Protect People

Scientists from the Africa-based International Livestock Research Institute (ILRI) joined forces in 1999 with Uganda's Livestock Health Research Institute (LIRI) and the University of Edinburgh's Centre for Tropical Veterinary Medicine (CTVM) to help stop an epidemic of human sleeping sickness that erupted in late 1998 in southeastern Uganda. The reasons livestock researchers should be involved in this medical drama, and why their research should be key to its resolution, point to the complex nature of this disease and its control and to the central role livestock play in farming in poor countries.

The target of LIRI, CTVM and ILRI is trypanosomosis, a wasting disease of ruminant animals that also afflicts people. The human disease is called sleeping sickness. Untreated, it is always fatal. Approximately half of all those infected go undiagnosed and untreated; within 6 months of infection, they lapse into a coma and die.

Over 500 reported cases, and an estimated 500 additional unreported cases, have occurred to date in Uganda's Soroti District, which was previously free of the disease. This is the first documented transmission of the disease outside its established foci to the south. Unchecked, the outbreak could become a widespread medical emergency.

Sleeping sickness spreads through the bite of tsetse flies infected with trypanosome parasites. Scientists at CTVM, LIRI and ILRI joined forces with researchers at the Universities of Makerere (Uganda), Glasgow and Guelph, and with Uganda's Ministry of Agriculture, to conduct studies that revealed that the trigger for the outbreak in Soroti was the importation of infected cattle from a region to the south where sleeping sickness is endemic.

In a country where basic medical care is out of reach of millions, controlling sleeping sickness by testing and treating everybody or by attempting to reduce fly populations over large areas is out of the question. Treating the disease in cattle, on the other hand, is relatively inexpensive and straightforward. Research indicates that treating all cattle for trypanosomosis before their transportation and sale may control the human disease. Mathematical models indicate that treating infected cattle is an effective way to break the transmission of the disease to humans.

> THE MOST APPROPRIATE FOCAL GROUPS FOR BATTLING SLEEPING SICKNESS ARE THE FARMING COMMUNITIES IT AFFLICTS

Given the close links between livestock, health and the environment, the most appropriate focal groups for battling sleeping sickness are the farming communities it afflicts. Livestock researchers are working with them, with support from the Canadian International Development Research Centre and the CGIAR Collective Action and Property Rights Initiative, to understand community priorities and incentives for both households and communities to help implement disease control. The researchers are linking the concerns and capacities of the communities to large-scale programs such as Farming in Tsetse-Controlled Areas and the Coordinating Office for the Control of Trypanosomosis in Uganda. Working directly with communities — a new approach for the livestock researchers — turns out to be the aspect of the project they find most exciting and gratifying. As capacities for household and collective action broaden in this endeavor, the benefits for poor people and their communities broaden as well.

Getting a Grip on Genetic Resources

The 2001 Mid-Term Meeting of the CGIAR charged the International Plant Genetic Resources Institute (IPGRI) with coordinating the Systemwide taskforce established to oversee participation in the two important summits of 2002. While almost all of IPGRI's activities make significant contributions to meeting the summits' goals directly or indirectly, two in particular are highlighted here.

During the World Summit on Sustainable Development, IPGRI's regional office for sub-Saharan Africa convened a special symposium at the Ubuntu Village exhibition venue. The meeting, Genetic Resources for Africa's Renewal, gave summit-goers an opportunity to appreciate the importance of genetic resources in the context of the strategy on agriculture of the New Partnership for Africa's Development. The need for action is urgent. Figures from the Food and Agriculture Organization of the United Nations indicate that Africa accounts for three-quarters of the world's 44 countries facing acute food shortages.

> THE DIVERSITY THAT FARMERS HAVE ENGENDERED — DIVERSITY THAT IS THE FOUNDATION OF AGRICULTURAL DEVELOPMENT — MUST BE PROTECTED FOR FUTURE GENERATIONS

The meeting grew out of earlier discussions in Africa among national programs, regional and subregional organizations, and some CGIAR Centers active in the region. Kwesi Atta-Krah, director of IPGRI's sub-Saharan regional office, pointed out that farmers in Africa as elsewhere had amply demonstrated their skills in adapting seeds to suit the different environments in which crops are grown. Those skills and the diversity that farmers have engendered — diversity that is the foundation of agricultural development — must be protected for future generations. "Farmers are the primary conservers of genetic diversity," M.S. Swaminathan reminded listeners during his keynote speech for the event. "And their rights must be protected."

Another IPGRI activity directed at sustainable development came to prominence during the year. The Genetic Resources Policy Initiative (GRPI) is currently funded by Canada (through the International Development Research Centre and the Canadian International Development Agency), Germany, the Netherlands and the Rockefeller Foundation. It aims to strengthen the capacity of national policymakers in developing countries to elaborate genetic resource policies, legislation and regulations adapted to their circumstances and needs. In part this helps countries meet their responsibilities under international treaties, but more than that it enables them to build strong national systems that effectively protect and promote their interests. For example, GRPI will help countries to put in place mechanisms that allow them to participate fully in the multilateral sharing of genetic resources and benefits under the International Treaty on Plant Genetic Resources for Food and Agriculture.

Initially, GRPI is working with six countries (Egypt, Ethiopia, Nepal, Peru, Vietnam and Zambia) and three regions (Andean Community, East Africa, and West and Central Africa).

Beijing Puts Rice on the Table

In the *Beijing Declaration on Rice*, 13 ministerial representatives from the world's main rice-growing countries affirm the role of rice as the foundation of food security and social stability for almost half of humanity. They recognize rice as the central economic and cultural feature that unites the peoples of Asia and sustains the strong rural communities essential for national development. They acknowledge that rice research and farmers' access to new technologies are essential to improving the well-being of more than half the world's rural families. Finally, they urge faithful support for publicly funded research institutes as they forge partnerships with the private sector to develop new rice technologies for poor farmers.

The declaration emerged from the International Roundtable on Rice held in September 2002, on the eve of the opening, by Chinese President Jiang Zemin, of the first International Rice Congress. The congress — co-organized by the International Rice Research Institute (IRRI), State Development Planning Commission of the People's Republic of China, Chinese Academy of Engineering, and Chinese Academy of Agricultural Sciences — attracted to Beijing more than 1,000 delegates from 20 countries. Affirming the heightened spirit of partnership fostered by the congress, the Beijing Genomics Institute pledged to make available to IRRI microarrays of the tens of thousands of rice genes it sequenced in the genome draft that it published in April in the journal *Science*, elucidating the genetic makeup of the indica subspecies of rice.

December saw both the completion of a highly detailed genome map by the publicly funded International Rice Genome Sequencing Project and an agreement between IRRI and the project leader, Japan's National Institute of Agrobiological Sciences, to cooperate in discovering gene function. The following month, IRRI and 17 other research institutions in 12 countries launched the International Rice Functional Genomics Consortium to accelerate gene discovery by facilitating the exchange of resources, data and ideas.

> THE FIRST INTERNATIONAL RICE CONGRESS ATTRACTED TO BEIJING MORE THAN 1,000 DELEGATES FROM 20 COUNTRIES, FOSTERING A HEIGHTENED SPIRIT OF PARTNERSHIP

These strides in genomic science and partnership-building are enabling IRRI to expand exponentially its capacity to mold and fire the clay of knowledge into the hardened bricks of sustainable rural development — the productive, resilient and nutritious rice varieties with which Asian farmers will build a better tomorrow. Meanwhile, in the run-up to the International Year of Rice 2004, the Institute is reinforcing its network of national research and extension partnerships assembled over the past 4 decades. This will ensure that these knowledge conduits are more effective than ever at keeping IRRI appraised of conditions in the field and, in line with Millennium Development Goals, delivering to poor rice farmers and consumers the benefits of science.

PHOTO CAPTION Song Jian, IRRI board member and an honorary chair of the International Rice Congress organizing committee; Angeline Saziso Kamba, IRRI board chair; Jiang Zemin, president of China; and Ronald Cantrell, IRRI director general.

Poverty Alleviation Requires Institutional Innovation

The CGIAR has an enviable track record of fostering technological change in agriculture. However, development depends as much on institutional as on technological change, since most technological innovations also require institutional innovation. To achieve impact, improved crop varieties require functional seed markets, workable legislation on plant variety rights, and convincing biosafety regulations. More broadly, farmers need markets to sell surpluses and buy inputs. The current shift in agricultural development from technological to institutional change has important implications for agricultural research.

In recent years, the International Service for National Agricultural Research (ISNAR) has invested heavily in institutional change, helping countries in Latin America explore new modes of organizing agricultural research in the public sector and of strengthening public–private partnerships. With support from the German Federal Ministry for Economic Cooperation and Development and the Canadian International Development Research Centre (IDRC), ISNAR brought together a research team including collaborators from 11 Latin America countries, two international centers and several universities to analyze how public–private partnerships contribute to equitable, sustainable development and to design appropriate mechanisms for governance, finance, and sharing costs and benefits. With training modules, methodological frameworks, analytical studies, pilot projects, and a newsletter available to a growing community of public and private partners, ISNAR is actively fostering public–private partnerships.

Regarding good governance in agricultural research, ISNAR's project on performance-based management systems, funded by the Asian Development Bank, finalized a set of assessment guidelines that has since been used in Sri Lanka and disseminated in Pakistan. ISNAR has introduced to research organizations in Pakistan, Sri Lanka, Vietnam and Indonesia new methods of planning and maintaining partnerships with farmers' organizations and others, both for governing and implementing research.

With support from the Canadian International Development Agency, Department for International Development (UK), IDRC, Norwegian Ministry of International Cooperation, and United States Agency for International Development, ISNAR has joined forces with many local sub-Saharan institutions able to address how AIDS interacts with agricultural systems and rural livelihoods. ISNAR is facilitating coalitions of public, private and civil organizations from across the agricultural sector and promoting convergence with organizations working on AIDS and public health. Pioneering action research funded by competitive grants is underway in Malawi and Uganda, with other countries to follow suit. AIDS is not just a medical challenge but is closely linked to farming systems, nutrition and collective action in rural societies. If we are to assist in alleviating the new AIDS reality in sub-Saharan Africa and beyond, we require a new research agenda driven by local needs and realities and underpinned by credible evidence of what works.

> THE CURRENT SHIFT IN AGRICULTURAL DEVELOPMENT FROM TECHNOLOGICAL TO INSTITUTIONAL CHANGE HAS IMPORTANT IMPLICATIONS FOR AGRICULTURAL RESEARCH

Exploring new avenues for agricultural research in these settings may lead to research agendas and institutions very different from those that we have today. Fulfilling Millennium Development Goals requires new agricultural research agendas and new institutions able to support technologies both new and old. ISNAR is working with its partners to foster renewal, in research agendas and institutions alike, that responds to changing needs.

Putting Agricultural Water Productivity on the Sustainable Development Agenda

Taking up a recommendation from the International Water Management Institute (IWMI) that getting "more crop per drop" is the key to solving the water crisis, United Nations Secretary-General Kofi Annan called for a "blue revolution" in agriculture in the run-up to the World Summit on Sustainable Development (WSSD). Since then, IWMI has worked with a number of CGIAR Centers and national agricultural research systems to turn productivity of water in agriculture from an emerging issue into one that sits squarely at the center of the sustainable development agenda.

> AGRICULTURE OFFERS THE GREATEST POTENTIAL FOR APPLYING BETTER WATER MANAGEMENT TO MITIGATE COMPETITION FOR WATER WITHOUT COMPROMISING FOOD SECURITY

An important step toward this goal came in August 2002 at the WaterDome, an official parallel event to the WSSD. Organized by IWMI for the Africa Water Task Force (www.iwmi.org/AWTF), this was the first international conference and exhibition focusing specifically on water and development issues. It was made possible through primary funding from the government of the Netherlands, with additional support from over 50 governments, international development organizations, water programs, nongovernmental organizations (NGOs) and private organizations.

The WaterDome brought together over 70 development NGOs, governments and international organizations. A packed program of conferences and events included the launch of a number of international water initiatives and coalitions and a wide range of workshops, presentations and panel discussions. Some 15,000 people — ranging from heads of state to South African school children — attended the WaterDome.

Agricultural research held a special place at the WaterDome, well represented at the CGIAR Pavilion hosted by the Comprehensive Assessment of Water Management in Agriculture (which is organized through the CGIAR Systemwide Initiative on Water Management). A special CGIAR Water and Food Security Day stressed the issue of water productivity in agriculture, pointing out that agriculture uses most of the developing world's water supplies — up to 90 percent in some countries — and so offers the greatest potential for applying better management to mitigate stiffening competition for water without compromising food security.

Other key developments emerging from the WaterDome included the following:

- Water was among the most frequently discussed issues at the summit and received more coverage in the international media than any other sustainable development topic.
- The WSSD adopted the Millennium Development Goals related to water: halving, by 2015, the proportion of people who do not have access to safe drinking water or sanitation.
- The African Ministers' Council on Water and the African Water Facility were launched.
- Two African transboundary water agreements were mapped out at the WaterDome, the IncoMaputo agreement on water sharing among Swaziland, Mozambique and South Africa, and the Lake Malawi/Niassa/Nyasa agreement on biodiversity management linking Malawi, Mozambique and Tanzania.
- A number of new initiatives, including the CGIAR Challenge Program on Water and Food, were launched at the WaterDome with strong pledges of support from key donors.

New Initiative for African Development

On 27 March 2002, the prime minister of Côte d'Ivoire launched the African Rice Initiative (ARI), a major drive to improve rice production throughout sub-Saharan Africa on the platform of the new rice for Africa (NERICA) varieties developed by the West Africa Rice Development Association (WARDA) – The Africa Rice Center. At the World Summit on Sustainable Development, the government of Japan, the United Nations Development Programme and the CGIAR held NERICA Day, which highlighted the benefits of NERICA varieties along with the ARI. The event was a huge success that included the participation of Japanese Foreign Minister Yoriko Kawaguchi, CGIAR Chairman Ian Johnson and two farmers from Côte d'Ivoire.

The ARI is in line with the New Partnership for Africa's Development and is an important follow-up to the Tokyo International Conference on African Development. The initiative also provides a framework for significant contributions to the Millennium Development Goals.

WARDA concluded a 2-year study begun in 2000, when the United States Agency for International Development asked the Center to formulate a strategy for developing the rice sector in Nigeria. The study included a literature review, expert consultation, stakeholder workshops and surveys. Despite a continually changing policy environment in Nigeria and significant price increases, consumers have remained faithful to rice. The country has been the world's second-largest rice importer for the past 5 years. Some 80 percent of locally grown rice is marketed, and producers are accustomed to using inputs. The study identified three strategic objectives: improving the quality of local rice, especially through postharvest technologies; improving market efficiency by reducing transaction costs; and increasing production efficiency to enable local rice to compete with imported rice. The study was timely in view of active stakeholder interest in rice-sector development, and initial reactions to the outcomes have been positive.

> THE AFRICAN RICE INITIATIVE AIMS TO IMPROVE RICE PRODUCTION THROUGHOUT SUB-SAHARAN AFRICA ON THE PLATFORM OF THE NEW RICE FOR AFRICA VARIETIES

The latter part of the year proved to be tumultuous for WARDA. Activities at the Center's headquarters and main research center in Bouaké, Côte d'Ivoire, were severely disrupted after a failed coup d'etat and rebellion led to civil war in the host country in September 2002. After a week behind rebel lines, WARDA senior staff evacuated under the protection of French troops to re-establish operations in the commercial capital, Abidjan. As it became clear that the crisis would be protracted, WARDA management negotiated an agreement with the government of Mali, that country's Institute of Rural Economy (IER by its French acronym) and the International Crops Research Institute for the Semi-Arid Tropics (a sister CGIAR Center) to relocate most of WARDA's researchers to Bamako, Mali, in early 2003. This strategic move ensures the continuity of the Center's research activities, as WARDA management continues to operate from its temporary headquarters in Abidjan. WARDA's network-based model of regional collaboration has been invaluable in maintaining the Center's research-and-development activities outside Côte d'Ivoire.

Reorganizing Delivery for Sustainable Development

Since its inception 25 years ago, the World Agroforestry Centre (ICRAF) has adapted its program content and structure in response to the changing needs of poor farmers in the tropics. This evolutionary change accelerated over the last decade, as the Center became a global leader in the science of agroforestry for sustainable development. During this same period, the Center's scientists learned just how closely intertwined their research and development activities are and that, if they are to see new knowledge about agroforestry lead to positive changes in the lives of the rural poor, they must truly integrate their research and development efforts, both internally and with their many partners.

> WITH INTEGRATED RESEARCH AND DEVELOPMENT EFFORTS, NEW KNOWLEDGE ABOUT AGROFORESTRY LEADS TO POSITIVE CHANGES IN THE LIVES OF THE RURAL POOR

To facilitate this, the World Agroforestry Centre has implemented a structural transformation, eliminating the trappings of a traditional compartmentalized approach to research and development, and rearticulating its global and regional agendas in the context of the major sustainable development challenges that emerged from the World Summit on Sustainable Development and the World Food Summit. The Center has reorganized its activities around four major themes, all of which contribute directly to the goals of the CGIAR and connect in tangible ways to the sustainable development challenges of the 21st century. The themes are:

Land and People: Improving land productivity to enable sustainable livelihoods;

Trees and Markets: Enhancing tree-based agricultural systems and facilitating the development of markets for agroforestry products;

Environmental Services: Achieving the potential of agroforestry systems and landscape mosaics to improve the delivery of environmental services vital to sustainable development;

Advancing Institutions: Strengthening the capacity of hundreds of institutions worldwide to generate and apply agroforestry innovations to achieve better and more sustainable livelihoods.

This refocusing of the World Agroforestry Centre's activities solidifies its commitment to addressing seven of the Millennium Development Goals in the following ways:

- Helping to eradicate hunger through pro-poor food-production systems in disadvantaged areas based on using agroforestry to improve soil fertility and regenerate the land;
- Reducing rural poverty through market-driven, locally led tree-cultivation systems that generate income and build assets;
- Improving the health and nutrition of the rural poor through agroforestry systems;
- Conserving biodiversity through integrated conservation and development solutions based on agroforestry technologies, innovative institutions and better policies;
- Protecting watershed services through agroforestry-based solutions that allow smallholders to be rewarded for providing these services;
- Enabling the rural poor to adapt to climate change and to benefit from emerging carbon markets through tree cultivation; and
- Building human and institutional capacity in agroforestry research and development.

Setting Fisheries Targets, the First Summit Breakthrough

Most of the world's natural fish stocks are depleted beyond safe production levels, and many fish habitats are in danger of irreversible damage. Yet sustainable development in Asia, Africa and the other developing regions where most of the world's poor live depends on contributions from all assets, including the protein and nutrients provided by natural fisheries.

The World Summit on Sustainable Development (WSSD) in Johannesburg recognized this reality when participating countries agreed to fisheries targets as its first major breakthrough. The summit made a commitment to the historic target of restoring fish stocks to levels that can produce maximum sustainable yield — and to do so urgently, by no later than 2015. More commitments relevant to the sustainable use, management and conservation of fish and other living aquatic resources followed, including supporting small-scale aquaculture, stopping illegal fishing, protecting the marine environment from land-based degradation, and bolstering the scientific and technological capacity necessary to accomplish this.

Rectifying the dire world fisheries situation requires urgent commitment from everyone who uses and manages these resources. Realizing this, the WorldFish Center launched the 10-year Fish for All initiative at a special summit on 3 November 2002 in Penang, Malaysia. The Fish for All summit attracted 300 participants from 40 countries, including fisheries specialists, development assistance experts, fishers organizations and civil society representatives. Supporting the summit were the Australian Agency for International Development, Bangladesh Rural Advancement Committee, Crawford Fund (Australia), Danish International Development Agency, German Federal Ministry for Economic Cooperation and Development, University of Canberra, United States Agency for International Development, and World Wildlife Fund International.

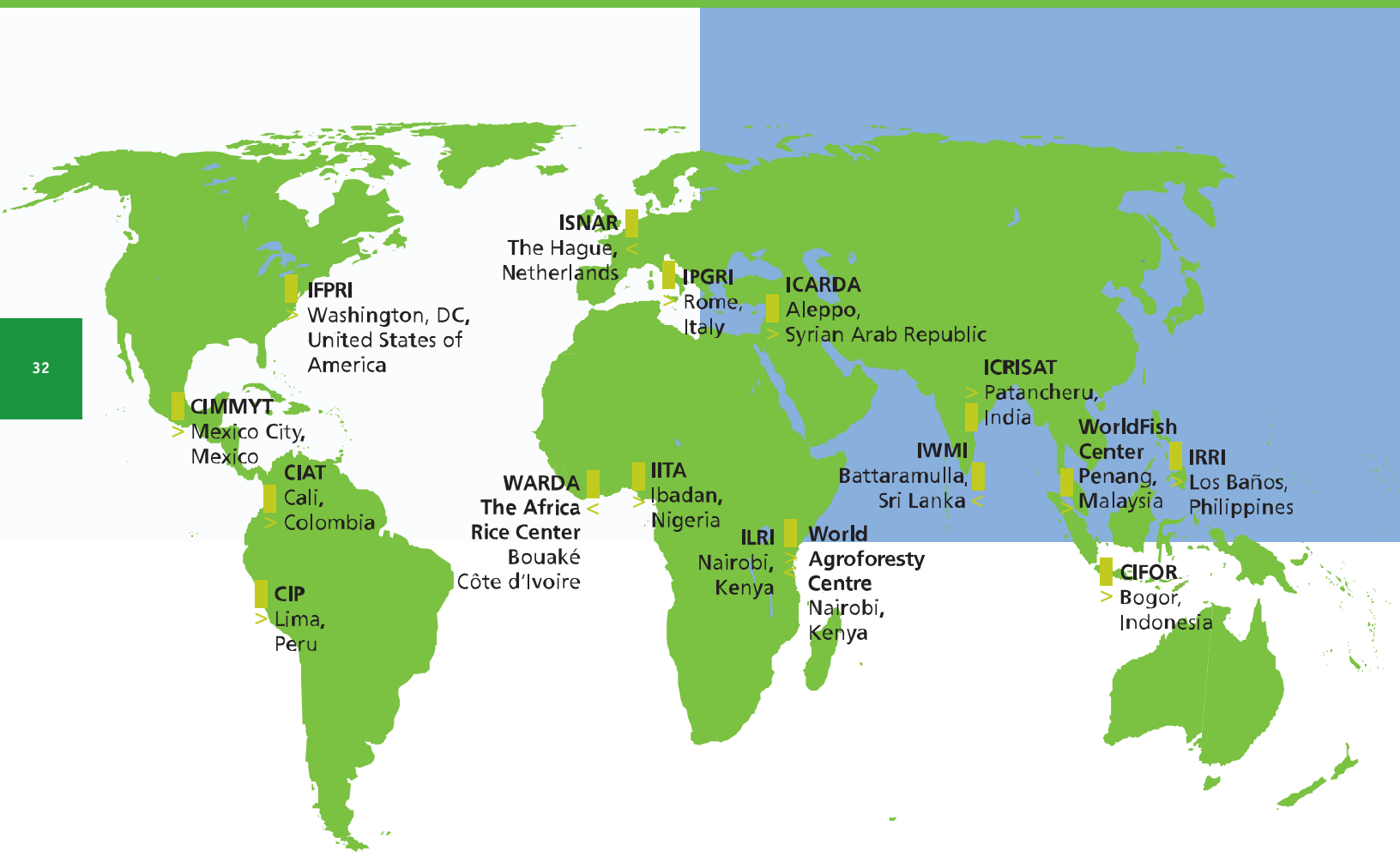
"The Fish for All summit was the first meeting to take WSSD seriously," said Ian Johnson, World Bank vice president for environmentally and socially sustainable development and chair of the CGIAR, in his keynote address. He stressed how developments in the Bank's own long-term forecasts to 2050 — including a tripling of gross domestic product, the addition of another 2 billion people (mostly in developing countries), soaring water demand and climate change — will pose environmental, social and economic challenges to satisfying the world's fish needs. These are challenges that the world must prepare to meet now.

Coordinating the Fish for All initiative is the WorldFish Center under the guidance of its Global Steering Committee composed of eminent personalities from all over the world and chaired by M.S. Swaminathan, winner of the first World Food Prize, former director general of the International Rice Research Institute, and Cousteau chair in ecotechnology of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

"Governments have produced a large number of treaties and conventions, and coordination is needed among them," Prof. Swaminathan cautioned attendees. "Often these treaties and conventions are negotiated and managed by officials from ministries without direct experience and knowledge of fisheries (e.g. development assistance, agriculture, health, trade, etc.) and so the implications for fish are not directly included in these instruments of change."

An objective of the Fish for All initiative is to facilitate collaborative action to bring fish squarely into the development picture. For details, see www.fishforall.org.

The Future Harvest Centers of the CGIAR



Expanding Partnerships in 2002

Recovery From Conflict and Disaster: Partnerships for Rebuilding Agriculture

The CGIAR's outstanding achievements, including the Green Revolution of the 1960s and 1970s, are renowned for having rescued millions from starvation and poverty. In contrast, the alliance's role in rebuilding agriculture in countries affected by war, civil conflict or natural disaster is much less known. Yet a recent study by the International Peace Research Institute in Oslo, Norway, found a close link between agriculture and conflict. According to the study, most conflicts between 1989 and 1997 took place in regions heavily dependent on agriculture — South, Central and West Asia, Central Africa, and parts of Latin America.

Several CGIAR Centers have played key roles in rebuilding agriculture in areas affected by civil strife and war. In recent years, for example, the International Center for Agricultural Research in the Dry Areas (ICARDA) has faced the task of rebuilding agriculture in Central and West Asia.

In Lebanon and areas under the Palestinian Authority, where agriculture has been greatly damaged by conflict, ICARDA has been helping to develop the needed resources, promote technology transfers and support human-capacity building. War and civil strife in Afghanistan, and the economic sanctions on Iraq following the Gulf War of 1990–1991, have had great negative impacts on agriculture in these countries. The new nations of Central Asia and the Caucasus are struggling to reform their agriculture following their transition to independence. ICARDA has taken the lead in paying special attention to these countries.

Reviving Afghanistan

With ICARDA in the coordinating role, 34 organizations including 10 CGIAR Centers used financial support from the United States Agency for International Development to launch in January 2002 the Future Harvest Consortium to Rebuild Agriculture in Afghanistan. The lack of seed in Afghanistan because of several years of drought and war was the immediate problem facing Afghan farming communities. For the 2002 spring planting season, the Consortium, in cooperation with nongovernmental organizations, the Food and Agriculture Organization of the United Nations, and the government of Afghanistan, distributed 3,500 tons of high-quality wheat seed to 40,000 farmers. This not only increased the farmers' production, it also permitted the start of local seed production, which made available to farmers 4,583 tons of locally produced seed for the 2002 autumn season.

> MOST CONFLICTS TAKE PLACE IN REGIONS HEAVILY DEPENDENT ON AGRICULTURE

A code of conduct for importing seeds into Afghanistan has been developed. ICARDA holds in its genebank some 2,200 accessions of landraces and improved local varieties collected in Afghanistan. Several of them have been multiplied and repatriated. The Consortium has also rehabilitated agricultural research stations in Kabul, Baghlan, Kunduz, Taghar and Jalalabad, allowing the start of germplasm evaluation and the development of facilities for processing and testing seed. Four needs-assessment studies have explored seed systems and crop improvement; soil and water management; livestock, feed and rangelands; and horticulture. These assessments guided preparation of specific proposals for implementation.

Diversifying Central Asia and the Caucasus

In the Soviet era, Armenia, Azerbaijan, Georgia, Kazakstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan were

Challenge Programs: New Partnerships for Development Impact

essentially commodity-producing components of a larger system. Following the breakup of the Soviet Union, each of these countries has faced the challenge of developing a stand-alone economy, a process that requires a major effort in diversifying agricultural production.

Ten CGIAR Centers have joined forces under ICARDA leadership to address the problems of agricultural research and development through the CGIAR Collaborative Research Program for Sustainable Agricultural Production in Central Asia and the Caucasus (CAC). This "one-stop shop" of the CGIAR pools the expertise of the Centers and provides a single point of contact for the CAC region. The research program includes crop improvement; managing the natural resources land, water and biodiversity; nutrition and managing livestock; and the rehabilitation of rangelands and assessment of their role in carbon sequestration and global climate change.

The joint research with national programs in CAC has resulted in the release of several new varieties of cereal and food legume crops, thereby increasing food production. It has also developed new technologies for conserving and managing land and water resources, including the use of marginal-quality water for forage production and sustainable use of sloping lands. Regional genebanks, which suffered from neglect, have been restored and provided with modern equipment. And, finally, many national researchers have received training that allows them to use cutting-edge science in their research programs.

> SEVERAL CGIAR CENTERS HAVE PLAYED KEY ROLES IN REBUILDING AGRICULTURE IN AREAS AFFECTED BY CIVIL STRIFE AND WAR

The CGIAR Challenge Programs are high-impact, scientific research programs that create solutions to the major global and regional development challenges facing the human family. Grounded in participatory research, Challenge Programs contribute to achieving the Millennium Development Goals.

Two Challenge Programs received approval in 2002:

Water and Food aims to increase the productivity of water for food and livelihoods, while maintaining global diversions of water to agriculture at the levels of 2000. Participating under the leadership of the International Water Management Institute are four CGIAR Centers, six national agricultural research organizations, four advanced research institutes, and three international nongovernmental organizations. The research-for-development effort will cover seven benchmark basins in Africa, Asia and Latin America.

Biofortified Crops for Improved Human Nutrition seeks to breed and disseminate new crop varieties with improved micronutrient content (vitamin A, iron and zinc) for boosting human nutrition. The International Center for Tropical Agriculture and the International Food Policy Research Institute are leading the effort, which includes six CGIAR Centers, four advanced research institutes and 28 partner institutions.

These two Challenge Programs and a third one — **Unlocking Genetic Diversity for the Resource Poor** led by the International Maize and Wheat Improvement Center, International Plant Genetic Resources Institute, and International Rice Research Institute — are part of a pilot effort to accelerate the search for food and environmental solutions for the 21st century.

Included on a slate of new Challenge Programs being developed is **Improving Livelihoods and Natural Resources Management in Sub-Saharan Africa — Securing the Future for Africa's Children.** When approved, this will be the first Challenge Program developed by a partner organization, the Forum for Agricultural Research in Africa. Other Challenge Programs in the pipeline address the challenges of climate change, reversing coastal degradation, halting desertification, and conserving biodiversity and rainforests.

> IN KEEPING WITH CGIAR TRADITION, THE KNOWLEDGE, TECHNOLOGIES AND BENEFITS GENERATED BY CHALLENGE PROGRAMS WILL BE IN THE PUBLIC DOMAIN, AVAILABLE TO ALL

Recognizing that new knowledge drives agricultural development and that partnerships are key to success, the Challenge Programs are helping to mobilize modern science to serve the development needs of poor farming communities worldwide.

For more information on the Challenge Programs, visit www.cgiar.org.

Global Conservation Trust: Taking Biodiversity to the Bank

Halfway through the World Summit on Sustainable Development, the CGIAR and the Food and Agriculture Organization of the United Nations (FAO) announced plans to establish the Global Conservation Trust, an endowment to ensure the long-term security of diversity in the world's most important food crops. Statements of commitment and support followed from Egypt, Switzerland, the United States and the United Nations Foundation.

The announcement came on the heels of a report entitled *Crop Diversity at Risk: The Case for Sustaining Crop Collections*, by Imperial College, London. The report drew on information gathered from about 100 countries by FAO in 2000. Its findings were alarming; not only is crop diversity disappearing from the field, a large proportion of the crop genetic resources safeguarded in genebanks around the world, including those maintained by the CGIAR Centers, is under threat due to lack of funding.

Although the initiative was timed to coincide with the release of the Imperial College report, plans to support the long-term maintenance of crop-diversity collections had been long in the making. The idea was mooted in CGIAR fora — including the Systemwide Genetic Resources Program (SGRP) and the Finance Committee's Task Force on Resource Mobilization — starting in the mid-1990s. A feasibility study carried out in 2001 found that the notion of an endowment for national and international collections was no mere pipe dream. It suggested $260 million as a feasible initial target.

The fundraising campaign has attracted widespread interest, with commitments coming from governments North and South. The CGIAR and its Centers have provided generous

Awarding Excellence: Nothing Succeeds Like Success

support to the campaign, as have the SGRP and Future Harvest Foundation. Conceived from the outset as a public–private partnership, the Trust has already captured the imaginations of foundations and corporations around the globe. By late 2002, the progress made along the road toward the funding goal warranted taking steps to establish the Global Conservation Trust organization.

> A LARGE PROPORTION OF THE CROP GENETIC RESOURCES SAFEGUARDED IN GENEBANKS AROUND THE WORLD IS UNDER THREAT DUE TO LACK OF FUNDING

The Global Conservation Trust initiative was presented to the Ninth Regular Session of the FAO Commission on Genetic Resources for Food and Agriculture in October 2002. The Commission concluded that the initiative was "universally appreciated and supported" and appealed to donors "to assist in the establishment of the Trust."

Options for the governance and legal status of the Trust underwent extensive discussion and testing in focus groups involving donors of funds and germplasm and civil society organizations. At the request of these groups, the International Plant Genetic Resources Institute (IPGRI), representing the CGIAR, and FAO appointed an interim panel to establish the Trust. The Interim Panel of Eminent Experts held its first meeting in February 2003 and concluded that the Trust should be an international organization with an independent legal character. Geoffrey Hawtin, outgoing director general of IPGRI and secretary of the SGRP, was slated to head up the Interim Executive Secretariat, to be based at FAO, beginning on 1 September 2003.

For more information, visit www.startwithaseed.org.

Scientific innovation directed toward the development needs of poor farming communities is a strong CGIAR tradition. So is celebrating success. The 2002 CGIAR Science Awards recognized significant contributions by CGIAR scientists and their partners, continuing the tradition of scientific excellence. With a view toward further promoting science in the broader community, as well as recognizing the significance of communications in research and development work, the CGIAR initiated in 2002 two new awards for outstanding journalism and communications in science.

2002 CGIAR Science Awards

CGIAR KING BAUDOUIN AWARD

Jointly awarded to the **International Center for Agricultural Research in the Dry Areas** (ICARDA) and **International Crops Research Institute for the Semi-Arid Tropics** (ICRISAT), for developing new chickpea varieties resilient to drought, heat, pests and diseases and so able to provide stable, profitable yields. Chickpea (*Cicer arietinum L.*) is an important, protein-rice food legume grown on 11 million hectares by poor farmers in North Africa and West, South and Southeast Asia. This research collaboration brought together scientists and farmers in more than 30 countries and is yielding positive results in the rainfed areas of (among other countries) Bangladesh, Ethiopia, India, Myanmar, Nepal and Syria.

OUTSTANDING SCIENTIST

Awarded to **Tushaar Shah**, principal scientist in the **International Water Management Institute** (IWMI), for his exceptional work in improving water policies, especially regarding the sustainable management and use of groundwater resources. His research has looked at a broad range

PHOTO CAPTION
Fred Pierce, Christopher Barr, Bruce Campbell, Imelda Revilla, Jagdish Kumar, Marilyn Louise Warburton, Tushaar Shah and Ruth Meinzen-Dick

of issues including energy subsidies in the water sector, strengthening and reform of water institutions, and irrigation management.

PROMISING YOUNG SCIENTIST
Awarded to **Marilyn Louise Warburton**, molecular geneticist in the Applied Biotechnology Center of the **International Maize and Wheat Improvement Center** (CIMMYT), for developing a fast, inexpensive and replicable methodology for accurately analyzing genetic diversity in maize and wheat seeds using molecular characterization techniques.

OUTSTANDING SCIENTIFIC SUPPORT TEAM
Awarded to the project Exploiting Biodiversity for Sustainable Pest Management, led by the **International Rice Research Institute** (IRRI). By planting different types of rice alongside each other, the research team — consisting of **Florencio Balenson, Maximino Banasihan, Marietta Baraoidan, Alicia Bordeos, Nancy Castilla, Crisanta Culala, Flavio Maghirang, Isabelita Oña, Imelda Revilla** and **Veritas Salazar** — was able to achieve near total control of rice blast disease. *The New York Times* described the research in China, where the project has successfully curbed the spread of blast, as a "stunning success."

OUTSTANDING PARTNERSHIP
Awarded to the **Collective Action and Property Rights** (CAPRi) program led by **Ruth Meinzen-Dick** of the **International Food Policy Research Institute** (IFPRI). A CGIAR Systemwide initiative involving all the Centers and 400 national research institutes, universities, advanced research institutes and nongovernmental organizations, CAPRi has contributed to building a greater understanding of the important role of institutions in promoting collective action and property rights. The CAPRi partnership has contributed to developing coherent frameworks, research methodologies and cross-comparable case studies that enable the development of locally relevant policies and institutions.

OUTSTANDING SCIENTIFIC ARTICLE
Jointly awarded to **Bruce Campbell** of the **Center for International Forestry Research** (CIFOR) and **Jeffrey Sayer** of **World Wildlife Fund**, for their paper *Research to Integrate Productivity Enhancement, Environmental Protection and Human Development* published in *Conservation Ecology*. The paper succinctly shows why integrated natural resource management research is necessary to meet the challenges of poverty and environmental sustainability. Jeffrey Sayer led CIFOR prior to joining the World Wildlife Fund.

2002 Awards for Outstanding Journalism and Communications

OUTSTANDING JOURNALISM
Awarded to **Fred Pearce**, freelance journalist, for his articles *Desert Harvest* published in *New Scientist* (27 October 2001) and *The King of Cowpea* published in *Geographical Magazine* (January 2002). Mr. Pearce's writings have highlighted the successes of science-for-development efforts in Africa.

OUTSTANDING COMMUNICATIONS
Awarded to **Christopher Barr** of **CIFOR**, for his research on Indonesian forest policies and the role of financial institutions in funding large-scale investments in forest-based industries. This research examined the factors driving the rapid expansion of Indonesia's pulp and paper sector, highlighting the financial risks associated with the fiber-supply strategies of the sector's major producers.

Executive Summary of the 2002 CGIAR Financial Results

The 2002 financial results reported here are based on the audited financial statements of the 16 Centers supported by the CGIAR. Consolidated analyses and reports, including this summary, were produced on behalf of the CGIAR Secretariat by the WorldFish Center team (Su Ching Tan, Rainelda Ampil and Karina Ho) led by Edward Sayegh, associate director general of corporate services. A more detailed financial report including time series tables and charts is contained in the enclosed compact disc and posted on the CGIAR Web site (www.cgiar.org).

Executive Summary of the 2002 CGIAR Financial Results: On Target Overall

CGIAR Members support Centers and programs of their choice, and each Center receives and spends funds. Thus, the CGIAR financial outcome discussed here is a consolidation of the financial results of the 16 autonomous CGIAR Centers. The results are reported in US dollars.

CGIAR's 2002 Financial Goals

As in past years, the CGIAR's financial goals in 2002 were to attract sufficient resources to enable it to implement its work program for the year and to maintain its strong financial position. The financial targets for 2002 approved at the CGIAR Annual General Meeting 2001 were:

- to implement an approved work program costing $366 million, of which $347 million would be funding from Members and $12 million would be Center income, with the planned deficit of $7 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 2002 result confirms that the CGIAR was successful in achieving its financial targets. Total expenditures for the 16 Centers were $369 million, virtually on target. Resource targets were also met: Member funding for Center programs totaled $346 million, and Center income was $13 million, resulting in a deficit of approximately $10 million. Net assets for the System declined by $14 million to $175 million in 2002, the result of the $10 million deficit and $4 million in asset write-downs. Overall, however, the CGIAR's financial position remained strong at the end of the year as such liquidity indicators as cash, working capital and current ratio remained healthy. Highlights of the System's 2002 financial performance are shown in Table 1, with comparative information for the previous 4 years.

CGIAR Contributions

The year 2002 showed a further increase in aggregate financing for the 16 Centers supported by the CGIAR. CGIAR contributions totaled $357 million in 2002 compared with $342[1] million in 2001, an increase of $15 million, or 4 percent. Of the total contributions of $357 million for 2002, $346 million was allocated to Center programs, and the balance of $11 million was allocated to Centers as advance 2003 support ($5 million), to the System Office ($5 million) and to Committees/Special Programs ($1 million).

> THE 2002 RESULTS CONFIRM THE CONTINUED STABILITY OF CGIAR FINANCES IN THE AGGREGATE BUT SHOW WIDE VARIABILITY IN FINANCIAL PERFORMANCE AMONG THE 16 CENTERS

Fifty-five of the 58 CGIAR Members[2] contributed $331 million (up from $319 million in 2001), and the remaining $26 million came from a broad range of sources including multi-donor projects and non-member foundations and developing countries. Table 2 lists contributions for 1998-2002 by contributor.

As shown in Figure 1, the increase in contributions in 2002 came mainly from two Member groups: Europe increased by $16.1 million (12 percent) and North America by $8.6 million (15 percent). In addition, multi-donors and non-CGIAR members increased their contributions by $3 million (13 percent). These increases were

Table 1 **CGIAR Program and Resource Highlights** | 1998–2002

ACTUAL	**1998**	**1999**	**2000**	**2001**	**2002**
Center income (millions of US dollars)					
Agenda funding	338	330	331	337	357
(of which percent unrestricted)	61%	54%	50%	43%	42%
Center earned income	13	13	14	16	13
Total revenue	**351**	**342**	**345**	**353**	**370**
Membership agenda support (millions of US dollars)					
Europe	148	126	128	131	147
Pacific Rim	44	48	44	37	25
North America	53	52	54	57	66
Developing countries	13	15	14	14	13
International and regional organizations[1]	64	68	66	67	72
Foundations	7	6	7	9	9
Non-members	12	15	19	23	26
Total	**340**	**330**	**331**	**337**	**357**
Top three contributors	World Bank United States Japan	World Bank Japan United States	World Bank United States Japan	United States World Bank Japan	United States World Bank United Kingdom
Staffing (number)					
Internationally recruited staff	958	982	1,017	1,013	1,060
Support staff	7,560	7,712	7,649	7,477	6,699
Agenda program expenditures (percent)					
Increasing productivity	37%	34%	36%	35%	34%
(of which germplasm enhancement/breeding)	18%	18%	18%	18%	18%
Protecting the environment	19%	20%	18%	19%	18%
Saving biodiversity	11%	10%	10%	10%	10%
Improving policies	12%	13%	14%	14%	15%
Strengthening NARS	21%	23%	22%	23%	23%
(of which training)	8%	9%	9%	9%	9%
Total (millions of US dollars)	**337**	**349**	**339**	**355**	**369**
Object expenditures (percent)					
Personnel	50%	50%	49%	49%	49%
Supplies/services	37%	38%	39%	40%	40%
Travel	7%	7%	7%	7%	7%
Depreciation	6%	5%	5%	4%	4%
Regional expenditures (percent)					
Sub-Saharan Africa (SSA)	41%	42%	42%	43%	43%
Asia	32%	32%	32%	31%	33%
Latin America and the Caribbean (LAC)	18%	17%	17%	16%	15%
Central and West Asia and North Africa (CWANA)	10%	9%	9%	9%	9%
Result of operations (System level)	**13.6**	**(6.4)**	**6.6**	**(1.7)**	**1.7[2]**
Center financial information					
Net assets	323	263	203	189	175
Annual Center cost change (percent)	1.0%	0.2%	0.3%	2.0%	2.0%
Short-term liquidity indicator					
Working capital (days expenditure)	127	122	112	129	125
Current ratio	1.8	1.6	1.7	1.9	1.8
Longer-term sustainability indicator					
Operating fund/revenue (percent)	15%	13%	18%	22%	21%

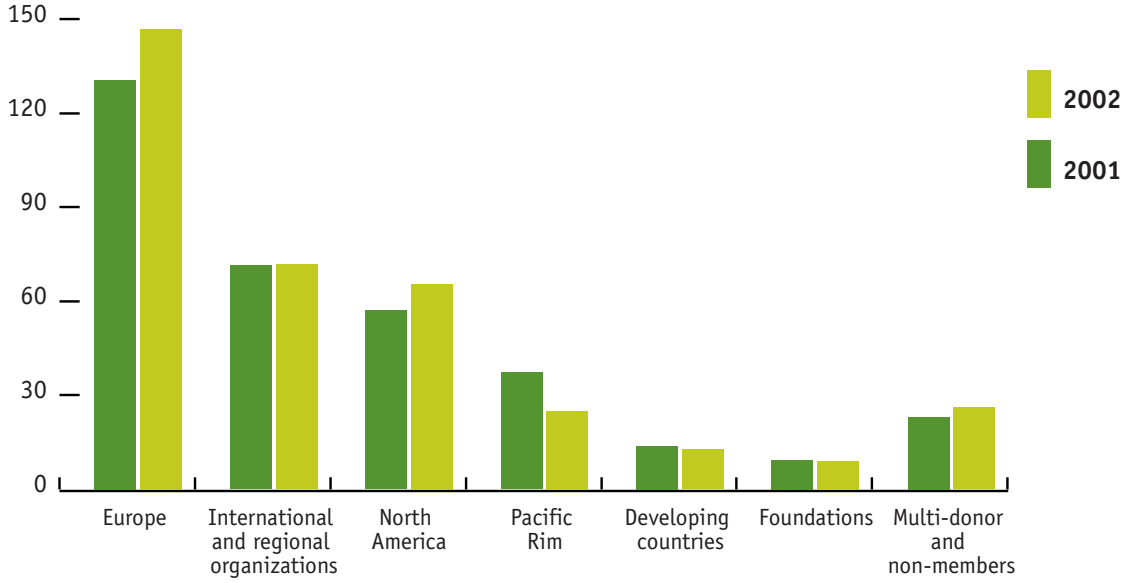
1 Until 2002, excluded $5 million annually to support the System Office and other System initiatives.
2 At the Center level the 2002 result of operations was a deficit of $9.6 million (Table 3). This was more than offset by that portion of CGIAR funding ($11 million) not included in Center income, resulting in a System level surplus of $1.7 million.

Table 2 **CGIAR Contributions to the Research Agenda by Member Group** | 1998–2002
(millions of US dollars)

MEMBERS	1998	1999	2000	2001	2002	1998-2002
Europe						
Austria	2.3	2.3	1.8	2.1	0.2	8.7
Belgium	6.0	6.8	4.7	4.5	4.9	26.9
Denmark	17.7	14.0	11.0	10.6	10.2	63.5
European Commission	24.9	6.0	22.3	21.7	24.5	99.4
Finland	2.1	1.5	1.5	1.5	1.5	8.1
France	5.9	5.9	6.0	6.0	7.8	31.6
Germany	16.3	15.5	10.2	12.3	10.5	64.8
Ireland	1.0	0.9	0.8	1.5	2.1	6.3
Italy	3.0	3.2	3.2	3.7	4.2	17.3
Luxembourg	0.7	0.7	1.3	0.8	0.8	4.3
Netherlands	14.7	11.6	13.7	12.2	17.0	69.2
Norway	8.3	8.9	7.7	8.3	10.4	43.6
Portugal	0.3	0.5	0.4	0.3	0.3	1.8
Spain	1.1	0.9	1.2	1.2	1.3	5.7
Sweden	9.3	10.3	9.4	9.2	10.7	48.9
Switzerland	22.7	22.8	18.3	15.7	16.0	95.5
United Kingdom	11.5	13.9	14.9	19.2	24.8	84.3
Subtotal	147.8	125.8	128.4	130.8	146.9	679.6
North America						
Canada	12.3	12.3	11.4	11.6	10.7	58.3
United States	40.5	39.4	42.1	45.4	54.9	222.3
Subtotal	52.8	51.7	53.5	57.0	65.6	280.6
Pacific Rim						
Australia	7.8	8.1	8.5	7.2	7.3	38.9
Japan	35.3	39.9	34.6	29.2	17.1	156.1
New Zealand	0.4	0.4	0.5	0.7	0.7	2.7
Subtotal	43.5	48.4	43.6	37.1	25.1	197.7
Developing countries						
Bangladesh	0.1	0.3	0.3	0.2		0.9
Brazil	0.7	0.4	0.4	0.4	0.9	2.8
China	0.5	0.7	1.0	0.9	1.0	4.1
Colombia	2.5	2.7	2.3	2.5	2.5	12.5
Côte d'Ivoire	0.1	0.1	0.1	0.1	0.0	0.4
Egypt, Arab Republic of	1.4	1.4	1.4	1.3	0.8	6.3
India	0.8	0.7	0.8	0.8	1.0	4.1
Indonesia	0.1	0.4	0.2	0.3	0.2	1.2
Iran, Islamic Republic of	2.0	1.8	1.7	1.7	0.9	8.1
Kenya	0.5	0.4	0.1	0.3	0.2	1.5
Korea, Republic of	0.9	0.8	0.9	1.1	1.1	4.8
Mexico	0.6	1.7	1.8	1.3	0.9	6.3
Nigeria	1.0	1.6	1.0			3.6
Pakistan	0.2		0.2	0.6		1.0
Peru	0.4	0.3	0.2	0.6	0.9	2.4
Philippines	0.7	0.3	0.4	0.2	0.2	1.8
South Africa	0.6	0.5	0.6	0.5	0.8	3.0
Syrian Arab Republic		0.5		0.5	0.5	1.5
Thailand	0.3	0.1	0.1	0.1	0.1	0.7
Uganda			0.3	0.3	0.6	1.2
Subtotal	13.4	14.7	13.8	13.7	12.7	68.3
Foundations						
Ford Foundation	3.1	2.6	2.6	2.7	1.3	12.3
Kellogg Foundation	0.3	0.1		0.2	0.3	0.9
Rockefeller Foundation	3.4	3.5	4.0	6.3	7.5	24.7
Subtotal	6.8	6.2	6.6	9.2	9.1	37.9
International and regional organizations						
ADB	3.8	4.4	6.0	6.9	6.5	27.6
AFDB	0.8	2.3	1.2	0.3	0.6	5.2
Arab Fund	1.5	1.9	1.7	1.6	1.0	7.7
FAO	0.6	0.2	0.2	0.4	1.8	3.2
IDB	2.1	1.5	1.4	0.5	0.5	6.0
IDRC	2.4	3.0	2.3	2.5	2.4	12.6
IFAD	4.0	6.9	5.8	6.6	5.8	29.1
OPEC Fund	0.2	0.2	0.2	0.4	0.2	1.2
UNDP	3.2	2.1	1.8	1.6	1.5	10.2
UNEP	0.1	0.2	0.7	0.7	1.4	3.1
World Bank*	45.0	45.0	45.0	45.0	50.0	230.0
Subtotal	63.7	67.7	66.3	66.5	71.7	335.9
Multi-donor and non-members	11.9	15.0	19.2	23.1	26.1	95.3
Total	340	330	331	337	357	1,695

*Until 2002, excluded $5 million annually to support the System Office and other System initiatives.

Figure 1 CGIAR Contributions | Millions of US dollars



partly offset by decreases in support from the Pacific Rim of $12 million (32 percent) and a smaller reduction from the developing countries.

The increase in contributions from Europe came from the United Kingdom ($5.6 million, or 29 percent), Netherlands ($4.8 million, or 39 percent), European Commission ($2.8 million, or 13 percent) and Norway ($2.1 million, or 25 percent). These more than offset decreases from Germany ($1.8 million, or 15 percent) and Austria ($1.9 million, or 90 percent). In North America the increase came from the United States ($9.6 million, or 21 percent), which more than offset a small reduction from Canada. The decrease in contributions from the Pacific Rim was due largely to a cut of about 50 percent (totaling approximately $12 million) in the Japanese contribution. Contributions by Australia and New Zealand were stable at their 2001 levels.

Contributions from the 22 developing-country Members decreased from $13.7 million in 2001 to $12.7 million in 2002, representing a reduction of 8 percent. Colombia maintained its position as the largest contributor among developing countries with $2.5 million in support.

The top 13 contributors to the CGIAR in 2002 provided about three-quarters of the funding for the research agenda, the same proportion as in 2001. The United States, contributing $54.9 million, was the single largest contributor, followed by the World Bank ($50.0 million) and the United Kingdom ($24.8 million). To compare with 2001, the United States and World Bank held the same rankings in that year, but the United Kingdom ranked only fifth.

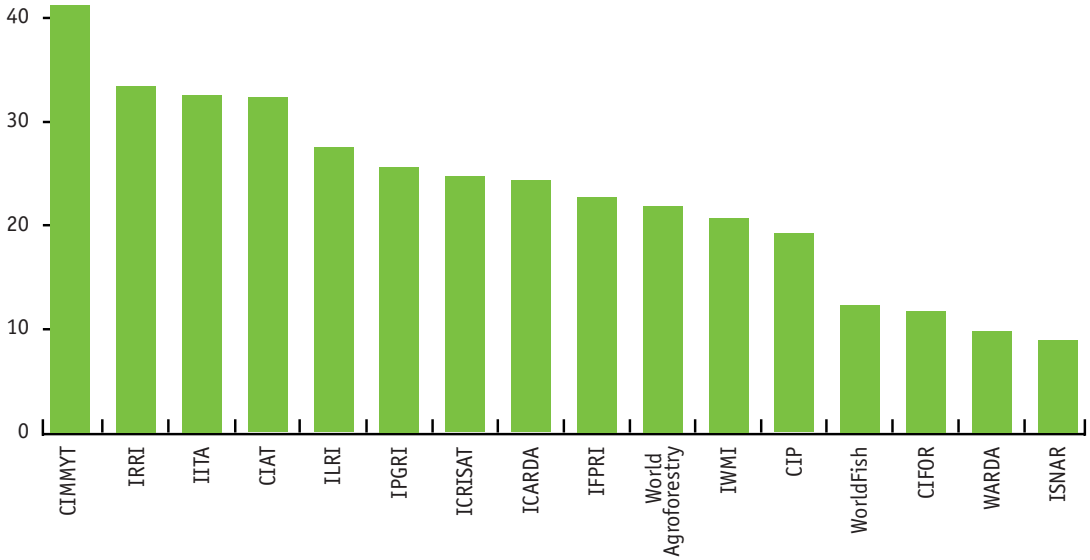
Resource Allocation

In overall terms, total Center expenditures in 2002 amounted to $369 million, 4 percent higher than in 2001. 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, activity and region.

Distribution among Centers: Figure 2 shows the distribution of expenditures by Center in 2002.

Expenditures by Object: Overall personnel costs continued to stabilize at 49 percent of total expenditures in 2002, compared to an average of 55 percent for the years prior to 2000. However, there are still large variations among the Centers in personnel costs. The total number of staff continued to decline from 8,490[3] in 2001 to 7,759 in 2002, an overall reduction of 9 percent. All of the reduction was in the category of non-internationally recruited staff. Numbers of internationally recruited staff (IRS) increased by 47, mainly because of recruitment at the

Figure 2 Expenditures by Center | Millions of US dollars



IWMI and smaller increases at the CIAT, CIMMYT, ICRISAT and IFPRI. Expenditures by object appear in Figure 3.

Activities: Illustrative allocations by the five principal CGIAR activities — increasing productivity, protecting the environment, saving biodiversity, improving policies and strengthening national agricultural research systems (NARS) — for 2002 are shown in Figure 4. These ratios are not significantly different from the 2001 ratios.

Allocation by Region: Illustrative allocations by region appear in Figure 5. Expenditures in sub-Saharan Africa remained stable at 43 percent of total CGIAR expenditures. Allocations in Asia increased from 32 percent to 33 percent. Allocations targeted to Latin America and the Caribbean decreased from 16 percent to 15 percent. Expenditures in Central and West Asia and North Africa remained at 9 percent of the CGIAR total.

Center Perspectives

The stability noted at the System level reflects a range of outcomes at the individual Centers. Funding increased for nine Centers. Compared with their 2001 levels, one of the

Figure 3 Expenditures by Object | 2002

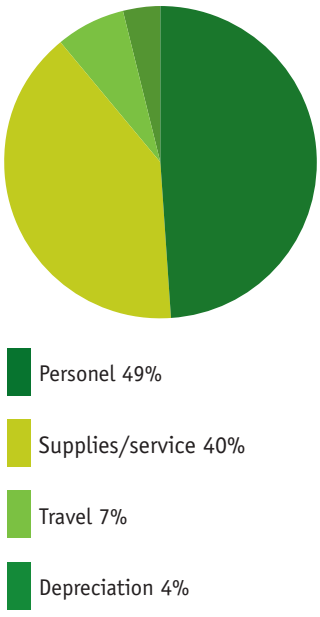


Figure 4 Expenditures by Activity | 2002

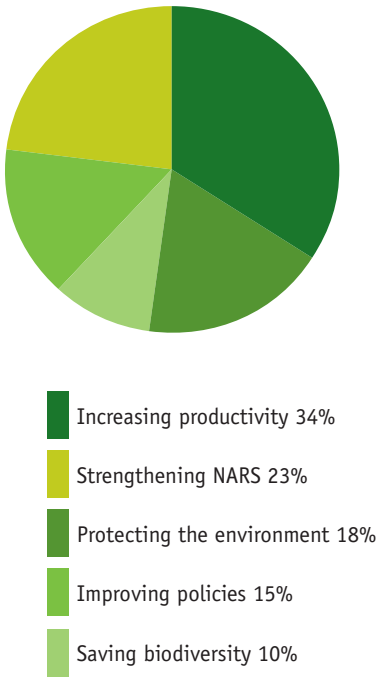
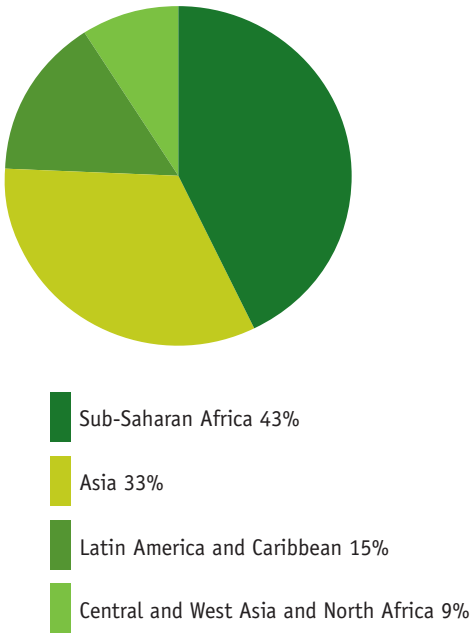


Figure 5 Allocations by Developing Region | 2002



increases, CIFOR, was less that 5 percent, five — WorldFish, IFPRI, ICARDA, ILRI, and WARDA–The Africa Rice Center ranged from 5–10 percent. Two, CIAT and IPGRI were within 10–15 percent. One, IWMI, exceeded 90 percent.

On the other hand, funding for the other seven Centers remained unchanged or contracted. Funding for four of these — World Agroforestry, IITA, ISNAR and ICRISAT — contracted by less than 5 percent. Funding for two — IRRI and CIP — fell by 5–10 percent, and for one, CIMMYT, fell by more than 10 percent. It should be noted here that part of the World Bank's contribution ($7 million) was allocated[4] to Centers to partly cushion the effect of the reduction in the Japanese contribution noted earlier.

Operational results (expenditures matched against funding and Center income) shows that three Centers (CIFOR, WorldFish and IFPRI) ended the year with healthy surpluses that contributed to their reserves. On the other hand, six Centers (CIAT, CIP, ILRI, ISNAR, ICRISAT and CIMMYT) incurred significant deficits. In the case of CIAT, CIP, ILRI and ISNAR, the deficits ranged from $0.6 to $0.9 million. The deficits were much higher at ICRISAT ($4 million) and CIMMYT ($5 million). The remaining seven Centers (ICARDA, World Agroforestry, IITA, IPGRI, IRRI, IWMI and WARDA) broke even or incurred a marginal surplus or deficit in their operations.

Table 3 provides 2002 and 2001 results of operations by Center.

Most Centers have built up their reserves by budgeting an appropriate amount in their unrestricted budgets. In the last few years, they have also increased their efforts to address long-term financial health through full cost budgeting on their restricted projects.

Table 4 provides an overview of Centers' finances (funding sources and allocation) for 2002, and Table 5 summarizes the System's overall financial position for the years 1998 to 2002.

Table 3 **Results of Operation by Center** | 2001–2002
(millions of US dollars)

	2002					2001				
	Member support	Center income	Total revenue	Expenditure	Result*	Member support	Center income	Total revenue	Expenditure	Result*
CIAT	31.0	0.7	31.7	32.3	(0.6)	27.5	2.3	29.8	29.7	0.1
CIFOR	12.5	0.0	12.5	11.7	0.8	12.3	0.4	12.7	12.6	0.1
CIMMYT	35.2	1.2	36.4	41.3	(4.9)	39.3	1.1	40.4	40.7	(0.3)
CIP	18.0	0.6	18.5	19.2	(0.6)	18.7	0.0	18.7	19.7	(1.0)
ICARDA	23.1	1.2	24.3	24.3	0.0	21.1	0.4	21.5	21.3	0.2
ICRISAT	19.8	1.0	20.8	24.8	(4.0)	20.4	1.4	21.8	23.9	(2.1)
IFPRI	22.9	0.4	23.3	22.7	0.6	21.7	0.7	22.5	22.5	0.0
IITA	31.4	1.0	32.5	32.6	(0.2)	31.6	2.2	33.8	35.3	(1.5)
ILRI	26.4	0.4	26.8	27.5	(0.7)	24.3	1.9	26.2	28.2	(2.0)
IPGRI	25.3	0.4	25.7	25.6	0.1	22.3	0.8	23.1	23.1	0.0
IRRI	28.5	4.6	33.2	33.4	(0.2)	30.3	1.7	32.0	32.6	(0.6)
ISNAR	7.9	0.0	7.9	8.9	(0.9)	7.9	0.1	8.1	8.1	0.0
IWMI	20.3	0.7	20.9	20.7	0.2	10.8	0.7	11.5	11.4	0.1
WARDA	9.7	0.5	10.1	9.8	0.3	8.8	1.0	9.7	9.4	0.3
World Agroforestry[1]	21.3	0.6	21.9	21.8	0.2	21.6	0.6	22.2	22.9	(0.7)
WorldFish[2]	12.7	0.0	12.7	12.3	0.4	12.1	0.4	12.5	13.1	(0.6)
TOTAL	346	13	359	369	(9.6)	331	16	346	355	(8.0)

* Deficits were financed by reserves.

1 Formerly International Center for Research in Agroforestry (ICRAF).

2 Formerly International Center for Living Aquatic Resources Management (ICLARM).

Table 4 **Center Finances** | 2002
(millions of US dollars)

	Allocations						Funding source									
	Increasing productivity	Protecting the environment	Saving biodiversity	Improving policies	Strengthening NARS	Total expenditures	Europe	Pacific Rim	North America	Developing countries	Intl & Regnl organizations	Foundations	Non members	Total funding	Center income	Reserves addition/ draw( )
CIAT	14.1	6.4	4.9	1.5	5.4	32.3	10.4	2.3	6.7	2.8	5.7	1.4	1.7	31.0	0.7	(0.6)
CIFOR	2.0	3.5	2.0	2.6	1.5	11.7	7.0	0.9	1.4	0.2	2.0	0.2	0.8	12.5		0.8
CIMMYT	15.4	7.9	5.8	1.7	10.6	41.3	9.6	3.3	6.9	2.0	5.2	2.4	5.8	35.2	1.2	(4.9)
CIP	8.8	4.5	1.2	1.0	3.6	19.2	10.2	1.1	2.7	0.8	2.6	0.3	0.3	18.0	0.6	(0.6)
ICARDA	10.3	5.5	3.7	1.1	3.7	24.3	7.0	0.9	7.9	1.3	5.4		0.8	23.1	1.2	(0.0)
ICRISAT	9.9	3.1	2.9	4.4	4.4	24.7	7.6	1.6	4.9	0.4	4.1	0.3	1.0	19.8	0.9	(4.1)
IFPRI		1.8		13.7	7.3	22.8	8.8	1.4	4.0	0.9	3.9	1.2	2.7	22.9	0.4	0.5
IITA	17.7	4.1	1.3	2.6	6.8	32.6	10.5	1.7	10.9	0.1	5.1	0.5	2.6	31.4	1.0	(0.2)
ILRI	15.5	3.3	1.9	2.7	4.1	27.5	14.2	1.1	4.2	0.5	4.3	0.3	1.8	26.4	0.4	(0.7)
IPGRI	5.5	2.2	7.5	2.6	7.8	25.6	12.7	1.3	1.6	1.2	5.1	0.1	3.4	25.3	0.4	0.1
IRRI	14.8	5.7	2.6	4.2	6.0	33.4	12.5	4.5	4.6	1.1	4.6	1.1	0.2	28.5	4.6	(0.3)
ISNAR				2.0	6.9	8.9	4.1	0.4	0.9	0.3	1.4	0.2	0.7	7.9	0.0	(1.0)
IWMI		8.2		7.2	5.2	20.7	10.9	0.8	1.5	0.5	4.7	0.0	1.9	20.3	0.7	0.3
WARDA	2.8	1.9	0.9	1.2	3.0	9.8	3.9	2.2	1.1	0.0	1.9	0.2	0.4	9.7	0.5	0.4
World Agroforestry[1]	6.4	4.7	1.0	3.1	6.6	21.8	11.1	0.7	4.0	0.3	3.1	0.8	1.2	21.3	0.6	0.2
WorldFish[2]	2.4	4.0	0.1	3.8	1.9	12.2	6.3	0.9	2.4	0.4	1.8		0.9	12.7		0.5
Total	126	67	36	55	85	369	147	25	66	13	61	9	26	346	13	(9.6)

1 Formerly International Center for Research in Agroforestry (ICRAF).

2 Formerly International Center for Living Aquatic Resources Management (ICLARM).

Table 5 **CGIAR System Financial Position** | 1998–2002
(thousands of US dollars)

	1998	1999	2000	2001	2002
Assets					
Current assets					
Cash and cash equivalents	171,110	212,347	151,327	142,339	149,076
Accounts receivable:					
Donors	65,965	54,062	60,823	63,346	72,864
Employees	2,699	2,591	3,499	2,498	3,078
Others	13,154	12,656	13,576	13,342	14,864
Inventories	7,257	6,653	6,506	6,040	4,447
Pre-paid expenses	2,786	3,398	3,069	3,265	3,673
Other current assets	3,247	4,549	5,248	3,515	3,327
Total current assets	266,218	296,256	244,048	234,345	251,329
Fixed Assets					
Property, plant and equipment	475,861	399,398	289,339	274,451	261,394
Less: accumulated depreciation	248,819	225,702	191,265	185,392	184,222
Total fixed assets (net)	227,042	173,696	98,074	89,058	77,172
Other assets			25,728	33,495	41,828
Total assets	493,260	469,952	367,850	356,898	370,329
Liabilities and net assets					
Current liabilities					
Accounts payable:					
Donors	67,200	100,576	56,658	54,078	78,749
Employees	8,971	9,876	5,369	12,020	11,877
Others	19,268	25,520	25,966	26,687	31,877
In-trust accounts	1,732	3,457	3,838	2,505	2,300
Accruals and provisions	50,054	43,855	48,259	47,223	42,377
Total current liabilities	147,225	183,284	140,090	142,513	167,180
Long-term liabilities	23,105	23,453	24,899	25,814	27,906
Long-term loan	190				
Others	22,915	23,453	24,899	25,814	27,906
Total long-term liabilities	23,105	23,453	24,899	25,814	27,906
Total liabilities	170,330	206,737	164,989	168,328	195,086
Net assets	322,930	263,215	202,861	188,570	175,243
Total liabilities and net assets	493,260	469,952	367,850	356,898	370,329

Conclusion

The 2002 results confirm the continued stability of CGIAR finances in the aggregate. As in the last several years, however, there is wide variability in financial performance among the 16 Centers, suggesting a need for continued vigilance at both the Center and System levels.

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, PricewaterhouseCoopers (PwC) will review the 2002 externally audited financial statements of the Centers to ensure their compliance with CGIAR accounting policy and reporting guidelines. The PwC report will include a compliance report to each of the 16 Centers.

In view of recent developments in accounting and corporate governance worldwide, the CGIAR finance professionals and the CGIAR Secretariat have launched a major review of the *CGIAR Accounting Guidelines*. Another mechanism to strengthen accountability within the CGIAR is an initiative to strengthen 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 2002, five Centers participated in this initiative, with four more joining in 2003.

1 Included in this amount is $5 million of the World Bank's contribution for the System Office, which was not included in the 2001 CGIAR funding total. For comparability, the World Bank's total contribution of $50 million each in 2001 and 2002 is used in this analysis.
2 For presentation purposes, the Members are divided into four distinct groups: industrialized countries (21), developing countries (22), foundations (3), and international and regional organizations (12). Industrialized countries are further divided along geographical lines into three subgroups: Europe, North America and Pacific Rim.
3 Revised from 8,485 published in the 2001 Executive Summary, based on Center updates.
4 Allocation was based on half of the total reduction by Japan to each Center.

Who's Who in the CGIAR in 2002

CGIAR Members
as of December 31, 2002

COUNTRY	KEY REPRESENTATIVE	KEY COOPERATING INSTITUTION
Australia	Peter Core	Australian Centre for International Agricultural Research
Austria	Walter Rill	Federal Ministry of Finance
Bangladesh	M.A. Hamid Miah	Ministry of Agriculture
Belgium	Luc Sas	Ministry of Foreign Affairs
Brazil	Alberto Portugal	Ministry of Agriculture and Food Supply, EMBRAPA
Canada	Christine Campbell	Canadian International Development Agency
China	Dongyu Qu	Ministry of Agriculture
Colombia	Luis Arango-Nieto	Ministry of Agriculture and Rural Development
Côte d'Ivoire	Kassoum Traore	Ministry of Agriculture and Animal Resources
Denmark	Klaus Winkel	Ministry of Foreign Affairs, DANIDA
Egypt, Arab Republic of	Mohamed Khalifa	Ministry of Agriculture and Land Reclamation
Finland	Anna-Liisa Korhonen	Ministry of Foreign Affairs
France	Gilles Saint-Martin	Ministry of Foreign Affairs
Germany	Hans-Jochen de Haas	Federal Ministry of Economic Cooperation and Development
India	Mangala Rai	Ministry of Agriculture, ICAR
Indonesia	Abdul Fattah	Ministry of Agriculture and Forestry
Iran, Islamic Republic of	Behzad Ghareyazie	Ministry of Agriculture
Ireland	Brendan Rogers	Department of Foreign Affairs
Israel	Nachman Paster	Ministry of Agriculture
Italy	Gioacchino Carabba	Ministry of Foreign Affairs
Japan	Toshinori Mitsunaga	Ministry of Foreign Affairs
Kenya	Wilfred Mwangi	Ministry of Agriculture and Rural Development
Korea, Republic of	Kyung-Han Ryu	Ministry of Agriculture
Luxembourg	Georges Heinen	Ministry of Finance
Malaysia	Saharan Anang	Malaysian Agricultural Research and Development Institute
Mexico	Jesús Moncada de la Fuente	Ministry of Agriculture
Morocco	Hamid Narjisse	Ministry of Agriculture, INRA
Netherlands	Adrian Koekoek	Ministry of Foreign Affairs
New Zealand	Keneti Faulalo	Ministry of Foreign Affairs and Trade
Nigeria	Oloche Edache	Ministry of Agriculture and Natural Resources
Norway	Aslak Brun	Ministry of Foreign Affairs
Pakistan	Zafar Altaf	Ministry of Food, Agriculture and Livestock
Peru	Ricardo Sevilla Panizo	Ministry of Agriculture
Philippines	William Medrano	Department of Agriculture
Portugal	Joao Borges	Ministry of Finance
Romania	Ilie Sarbu	Ministry of Agriculture and Food
Russian Federation	Viktor Dragavtsev	Russian Academy of Agricultural Sciences

COUNTRY	KEY REPRESENTATIVE	KEY COOPERATING INSTITUTION
South Africa	Bongiwe Njobe	Ministry of Agriculture and Land Affairs
Spain	Adolfo Cazorla	Ministry of Agriculture
Sweden	Eva Ohlsson	Ministry of Foreign Affairs, SIDA
Switzerland	Dora Rapold	Swiss Development Cooperation
Syrian Arab Republic	Noureddin Mona	Ministry of Agriculture and Agricultural Reform
Thailand	Somsak Singholka	Department of Agriculture
Uganda	Joseph Mukiibi	Ministry of Agriculture, Animal Industry and Fisheries
United Kingdom	Roland Fox	Department for International Development
United States of America	Emmy M. Simmons	United States Agency for International Development

FOUNDATIONS	REPRESENTATIVES
Ford Foundation	Michael E. Conroy
Kellogg Foundation	Rick Foster
Rockefeller Foundation	Robert W. Herdt
Syngenta Foundation for Sustainable Agriculture	Andrew J. Bennett

INTERNATIONAL AND REGIONAL ORGANIZATIONS	REPRESENTATIVES
African Development Bank	Akililu A. Afework
Arab Fund for Economic and Social Development	Mervat Wehba Badawi
Asian Development Bank	Bradford Philips
Commission of the European Community	Uwe Werblow
Food and Agriculture Organization of the United Nations	Officer-in-charge, Sustainable Development Department
Inter-American Development Bank	Ruben Echeverria
International Development Research Centre	Peter Cooper
International Fund for Agricultural Development	Rodney Cooke
OPEC Fund for International Development	Y. Seyyid Abdulai
United Nations Development Programme	Alvaro Umaña
United Nations Environment Programme	Shafqat Kakakhel
World Bank	Kevin Cleaver

CGIAR REGIONS	REPRESENTATIVES
Africa (Ethiopia)	Seyfu Ketema
Asia (Sri Lanka)	S.D.G. Jayawardene
Pacific (Fiji)	Samison Ulitu
Eastern Europe (Hungary)	Ervin Balazs
Latin America and Caribbean (Dominica)	Compton Lawrence Paul
Middle East Northa Africa (Sudan)	Osman A.A. Ageeb

The CGIAR
as of December 31, 2002

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Acronyms and Abbreviations

AARINENA	Association of Agricultural Research Institutions in the Near East and North Africa
ADB	Asian Development Bank
AFDB	African Development Bank
AGM02	2002 Annual General Meeting of the CGIAR
AIDS	Acquired Immune Deficiency Syndrome
ARI	African Rice Initiative
CAC	Central Asia and the Caucasus region
CAPRi	Collective Action and Property Rights program of the CGIAR
CBC	Committee of Board Chairs of the CGIAR
CDC	Center Directors Committee of the CGIAR
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical (International Center for Tropical Agriculture), Colombia
CIFOR	Center for International Forestry Research, Indonesia
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo (International Maize and Wheat Improvement Center), Mexico
CIP	Centro Internacional de la Papa (International Potato Center), Peru
CMD	cassava mosaic disease
CTVM	Centre for Tropical Veterinary Medicine, University of Edinburgh
CWANA	Central and West Asia and North Africa
DANIDA	Danish International Development Agency
EMBRAPA	Brazilian Agricultural Research Corporation
ExCo	Executive Council of the CGIAR
FAO	Food and Agriculture Organization of the United Nations
GFAR	Global Forum on Agricultural Research
GIS	geographic information systems
GRPI	Genetic Resources Policy Initiative of IPGRI
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas, Syrian Arab Republic
ICRAF	World Agroforestry Center, Kenya
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India
IDB	Inter-American Development Bank
IDRC	International Development Research Centre, Canada
IER	Institut d'Economie Rurale (Institute of Rural Economy), Mali
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute, United States
IITA	International Institute of Tropical Agriculture, Nigeria
ILRI	International Livestock Research Institute, Kenya and Ethiopia
INRA	Institut National de la Recherche Agronomique (National Agricultural Research Institute), Morocco
IPGRI	International Plant Genetic Resources Institute, Italy
IPR	intellectual property rights
IRRI	International Rice Research Institute, Philippines
IRS	internationally recruited staff
iSC	Interim Science Council of the CGIAR (replacing TAC)
ISNAR	International Service for National Agricultural Research, Netherlands
IWMI	International Water Management Institute, Sri Lanka
LAC	Latin America and Caribbean
LIRI	Livestock Health Research Institute, Uganda
NARS	national agricultural research systems
NERICA	new rices for Africa
NGO	nongovernmental organization
OECD/DAC	Organization for Economic Co-operation and Development/Development Assistance Committee
OPEC	Organization of Petroleum-Exporting Countries
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)
PSC	Private Sector Committee of the CGIAR
PwC	PricewaterhouseCoopers
SGRP	Systemwide Genetic Resources Program of the CGIAR
SIDA	Swedish International Development Cooperation Agency
SoilFertNet	Soil Fertility Management and Policy Network for Maize-Based Farming Systems in Southern Africa
TAC	Technical Advisory Committee of the CGIAR (replaced by interim Science Council)
USAID	United States Agency for International Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VITAA	Vitamin A for Africa
WARDA	West Africa Rice Development Association – The Africa Rice Center, Côte d'Ivoire
WEHAB	United Nations initiative for integrated action on water, energy, health, agriculture and biodiversity
WFS:fyl	World Food Summit: five years later
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

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