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development



CGIAR

Independent Review of the CGIAR System
Synthesis Report

Bringing together the best of science and the best of development

Independent Review of the CGIAR System

Synthesis Report

Elizabeth McAllister, Chair

November 2008



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INDEPENDENT PANEL FOR THE REVIEW OF THE CGIAR SYSTEM

November 3, 2008

Ms. Katherine Sierra
Chair, CGIAR
The World Bank
Washington DC

Independent Review of the CGIAR System

Dear Kathy:

On behalf of the Independent Panel for the Review of the CGIAR System, I am pleased to transmit to you the Synthesis Report of the Independent Review. The Panel and I wish to thank you and your colleagues for the trust and confidence that you have placed in us. We are very pleased to complete this Review and to deliver recommendations, which we believe may enable important reforms and position the CGIAR and its affiliated Centers as a leader in meeting the challenges of agriculture and natural resource management for the poor of the world.

In conducting the Review and preparing our Report, we consulted widely and benefited greatly from the expertise, insights, and support of many people and institutions both within and outside the CGIAR. Members, staff, and stakeholders were generous with their time and candid in their contributions. We have benefited from the exchange of ideas with participants in the Change Management Process. We are grateful to all who contributed to our work.

Today, there has been a unique confluence of a global food price crisis, an energy crisis, climate change challenges and environmental degradation, and a collapse of the international financial system. This is creating unprecedented demands on the international development community. Institutions will need to reform rapidly to cope with these developments.

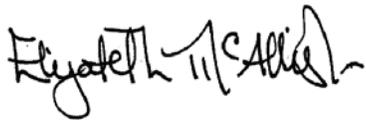
While the CGIAR can capitalize on its 37 years of global partnership, it must shed some systems and behaviors that no longer contribute to its effectiveness. It must produce a compelling results-oriented strategy and work plan and create the trust that will lead to substantial and predictable funding for research in the future. Although in recent years other organizations have gained strength in agricultural research, there is no question that the world needs the CGIAR global network of research Centers and its committed funders. It is unique in its history and long-standing in its credibility. It can make a vital contribution to the multiple tasks of scientific and social science research and technology innovation, resource mobilization, and constituency building.

The Panel members and I are pleased that many of our recommendations have already been assimilated into the reform proposals that will be presented at the CGIAR 2008 Annual General Meeting. The Panel is optimistic that the final Synthesis Report and the Technical Report will continue to guide the CGIAR System in its efforts. In our view it is a key part of the international institutional architecture and its contribution to development results at the global, regional, national, and local levels is essential.

Our recommendations call for swift decisions and urgent action focused on governance, results-oriented management, funding, partnerships, and gender integration.

In closing, thank you for your support to the Panel's work, and for your unstinting support of the independence of the Panel and for our recommendations.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Elizabeth McAllister". The signature is fluid and cursive, with the first name being the most prominent.

Elizabeth McAllister
Chair
Independent Panel for the Review of the CGIAR System

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As with previous evaluation teams, the Panel was moved by the dedication of so many to making the CGIAR System work for the betterment of humanity.

Abbreviations

CAS-IP	Central Advisory Service for Intellectual Property
CBC/CDC	Committees of Board Chairs and Center Directors
CBD	Convention on Biological Diversity
CDMT	Change Design and Management Team
CGI	crop genetic improvement
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical (International Center for Tropical Agriculture)
CIFOR	Center for International Forestry Research
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo (International Maize and Wheat Improvement Center)
CIP	Centro Internacional de la Papa (International Potato Center)
CPs	Challenge Programs
CPERs	Challenge Program External Reviews
ExCo	Executive Council
EPMRs	External Program and Management Reviews
FAO	Food and Agriculture Organization
FARA	Forum on Agricultural Research in Africa
GFAR	Global Forum on International Agricultural Research
GRPC	Genetic Resources Policy Committee
IAEG	Impact Assessment and Evaluation Group
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IEG	Independent Evaluation Group
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetic Resources Institute (now called <i>Bioversity</i>)
IRRI	International Rice Research Institute
ISI	Institute for Statistical Information
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IWMI	International Water Management Institute
MDTF	Multi-Donor Trust Fund
NARS	national agricultural research systems
NERICA	New Rice for Africa
NGO	nongovernmental organization
NGOC	NGO Committee
NRM	natural resource management

ODA	official development assistance
OED	Operations Evaluation Department (now Independent Evaluation Group)
OECD	Organisation for Economic Co-operation and Development
PARC	Public Awareness and Resource Mobilization Committee
PMS	Performance Measurement System
PRGA	Participatory Research and Gender Assessment Program
PSC	Private Sector Committee
SC	Science Council
SGRP	Systemwide Genetic Resources Programme
SO	System Office
SPIA	Standing Panel on Impact Assessment
SPME	Standing Panel on Monitoring and Evaluation
SPMS	Standing Panel on Mobilizing Science
SPPS	Standing Panel on Priorities and Strategies
SWEPs	Systemwide and Ecoregional Programs
TAC	Technical Advisory Committee
TOR	terms of reference
TRIPS	Trade Related Aspects of Intellectual Property Rights
UNCTAD	The United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPOV	International Convention for the Protection of New Varieties of Plants
USDA	United States Department of Agriculture
WARDA	Africa Rice Centre
WFP	World Food Programme

Overview: summary of findings and recommendations

Centers contribute value, but the CGIAR System is not achieving its full potential. Governance transformation is needed for leadership in a rebalanced partnership to articulate a shared, convincing strategy with a results orientation, clear authorities, and effective decisionmaking

The importance of reviewing the Consultative Group on International Agricultural Research (CGIAR) became starkly apparent to the Independent Review Panel in 2008 as food prices soared. World leaders called for rapid action to stem the effects of food price inflation as 100 million people were pushed into poverty and the ranks of the 800 million already suffering hunger began to swell. As trade barriers on rice and other food commodities were resurrected and food price protests hit many developing countries, the world community was reminded of the importance of food security to economic and political stability. The questions posed to the Panel by the CGIAR membership became compelling.

In our visits to the Centers and attendance at various forums over the year, the Panel was struck by the energy and dedication that Center leadership and scientists have for their work. We participated in several retreats with CGIAR members and stakeholders who worked hard for almost a year in an intensive change exercise to renew the CGIAR as a forum for bringing together the best of science and the best of development.

The CGIAR, however, suffers signs of age as it turns 37. It is in urgent need of structural change if it is to respond with its full potential to new challenges of food and environmental security. A renewed and rebalanced partnership is essential for the CGIAR System to improve its game.

In support of this renewal, the Panel offers its answers to the questions posed by the CGIAR Members in the form of key findings and recommendations, supported by a summary of its findings and a model for moving forward, detailed in this Synthesis Report. The Panel's full analysis is in its Technical Report.

The Panel's key conclusion is that the Centers contribute value, but the CGIAR System is not achieving its full potential. Governance transformation is needed for leadership in a rebalanced partnership to articulate a shared, convincing strategy with a results orientation, clear authorities, and effective decisionmaking.

The independent CGIAR network of research Centers matters—for achieving food security, for dealing with climate change, and for supporting achievement of the Millennium Development Goals. The new global architecture for agriculture will need to respond rapidly to emergencies, such as crop, animal, and zoonotic diseases of global significance. It will also need to make sustained investments over the coming decades to address such complex challenges as mitigation and adaptation to climate change and biotechnology for the poor.

Despite working in a complex environment with significant management challenges, CGIAR-supported research has seen high returns. Global and regional meta-evaluations suggest that CGIAR investments have paid for themselves by a wide margin, even considering just a few well documented successes. Its multidisciplinary research activities and its range of collaborations position the CGIAR network of Centers as one for the world's most innovative development partnerships—and as a 21st century organization.

But this is a serious moment in the CGIAR System's history. Notwithstanding its contributions and potential, the CGIAR system has major shortcomings and is hitting below its weight. It has been largely absent from the key global debates on the food crisis and climate change, it lacks a coherent strategy, it has

A new compact—one based on separate governance and management and predictable funding—is needed to rebuild the cooperative spirit between Members and Centers and bring the best of science together with the best of development

experienced financial and administrative upheavals in recent years, and the trust between its constituent Centers and the donors that support them has deteriorated.

Center performance is uneven, financing arrangements have not kept pace with needs, system governance has become cumbersome and ineffective, and management practices require improvement. Financing in real terms has stagnated since the 1990s. The share of unrestricted funds has declined steadily since 1998 and with it capital investment. The Centers are experiencing difficulty attracting and retaining top scientists. As a consequence, the CGIAR Centers' influence and impact are less than they could be.

The CGIAR System has been attempting reform since 1994. Incremental, these attempts have largely failed to meet their ambitious aims. Needed now is extensive reform, particularly to address a dysfunctional governance structure that is at the root of the System's inability to change.

A new compact—one based on separate governance and management and predictable funding—is needed to rebuild the cooperative spirit between Members and Centers and bring the best of science together with the best of development.¹ Effective structural reform as the vital first step should allow new leadership to emerge. The rebalanced CGIAR partnership, with the mutual accountability recommended in this report, should facilitate the formulation of a bold collective strategy.

These challenges offer an opportunity for renewing and strengthening the international agricultural architecture as well as the CGIAR System. With a 3,300-person scientific staff dedicated to poverty reduction and one of the world's largest and most important germplasm collections, the System can reaffirm its value to humanity. It generates and delivers international public goods—scientific and technological knowledge, agricultural research products and services, and research capacities to respond to and anticipate demand—that are essential to improve agricultural productivity and environmental sustainability in the poor regions of the world.

Findings

Finding 1: The CGIAR-supported Centers contribute substantially to agricultural productivity and natural resource management

Overall, recent impact assessments of CGIAR research reveal very high returns on investment. A recent meta-analysis of all ex post impact assessments over the System's lifetime found benefits suggesting that total investments in the CGIAR have paid for themselves by a wide margin—benefits ranged from \$12 billion to \$120 billion. Regional impact studies in South Asia and Sub-Saharan Africa point to substantial benefits of crop genetic improvement research in Asia and of crop genetic improvement and biological control research in Africa. But they also illustrate that research impacts in Africa have been limited geographically, with lower positive returns on investment than in other regions—despite Sub-Saharan Africa's receiving the largest regional share of CGIAR investment (41 percent over the CGIAR's lifetime).

Crop genetic improvement research has received the most assessment and has generated evidence of profound positive impacts from the broad diffusion of improved varieties and subsequent spillover effects. Yield-enhancing and yield-stabilizing modern varieties produced by the Centers and their national partners have produced benefits of more than \$10 billion annually, due largely to improved wheat, rice, and maize. Recent research on a range of crops and traits (drought resistance and nutritional content) are generating outputs and outcomes assessed as very promising for potential impact.

Recent studies on the impact of natural resource management research, including pest management, show substantial benefits and positive internal rates of return on investment. Some benefits have occurred at a considerable scale and are of international significance. Notable examples are the work of the rice-wheat consortium in South Asia, biological control programs in Africa, and the Alternatives to Slash and Burn Program. But

much of the research impact for natural resource management is still on a much smaller geographic scale than that for crop genetic improvement, often because adoption depends on local collective action, extension services, or assignment of property rights. That means that the spillovers can be very limited, and the overall impacts constrained.

The number of studies on the impact of policy-oriented research has risen considerably in recent years. Policy-oriented research offers strong potential for generating broad impacts affecting many people in many countries. Estimating benefit-cost ratios is more difficult for policy-oriented research than for most other types of research. Even where the evidence is clear that policy advice was applied, the advice is usually only one of many influences.

Finding 2: The CGIAR and Centers need to take a more strategic approach to partnership

The word *partnership* is greatly overused in the discourse of international development. Yet the CGIAR System cannot function effectively as a component of an international public goods delivery system without robust partnerships that ensure the distribution and use of CGIAR outputs. Although Centers have forged many high-value partnerships, most are short term and ad hoc. The resources, incentives, and strategic arrangements needed for an effective international public goods delivery system are not in place. The challenge for the CGIAR donors and Centers is to be part of such a system and to exercise vision and leadership in bringing it about. The green revolution of the 1970s in Asia was driven by a strategic vision that included the scientific discoveries of the CGIAR contributing to a delivery system that catalyzed large-scale agriculture and infrastructure investment. This resulted in an international public goods delivery system through strong partnerships between the CGIAR and the national agricultural research systems (NARS) and advanced research institutes.

New partnerships are needed to meet today's challenges—of food insecurity,

nutritional inadequacy, and climate change—especially in Africa. To be successful, these partnerships will need to apply the lessons of the first green revolution in Asia, with its clear long-term strategy for delivery system requirements, including financing for capacity and institution building. Without this, the current attention of world leaders on issues of food production and food security for the poor and vulnerable will come to very little.

Key characteristics of successful partnerships include:

- Written and mutually endorsed understanding of the “coincidence of objectives.”
- Stipulation and agreement on mutual expectations and the mechanisms for dispute resolution.
- Specification of “end points,” milestones, and a framework for ongoing evaluation.
- Inclusion of exit strategies and the conditions for their enactment.
- Where finances are part of the partnership, advance understanding on resource allocations, accountability, and management standards.

Finding 3: The Centers have made progress in addressing intellectual property protection, but more needs to be done

The CGIAR and its Centers' capacity to handle issues of intellectual property and governance of genetic resources affects the status of the collections in genebanks, the exchange of germplasm, the ability of the Centers to collaborate with NARS and farmer organizations, and the kinds of partnerships they can establish with the private sector and advanced research institutes. The CGIAR cannot ignore or casually handle issues of intellectual property protection. While some Centers have relatively developed regimes, high levels of awareness, and staff dedicated to dealing with intellectual property issues, the majority of the Centers do not have in-house staff responsible for intellectual property issues and tend to deal with these issues on an ad hoc

basis, often reacting to crisis. The general view among people consulted by the Independent Review Panel is that Centers need to do more to effectively deal with issues of intellectual property protection.

Finding 4: Gender is not adequately integrated into Centers' research mandates and outreach

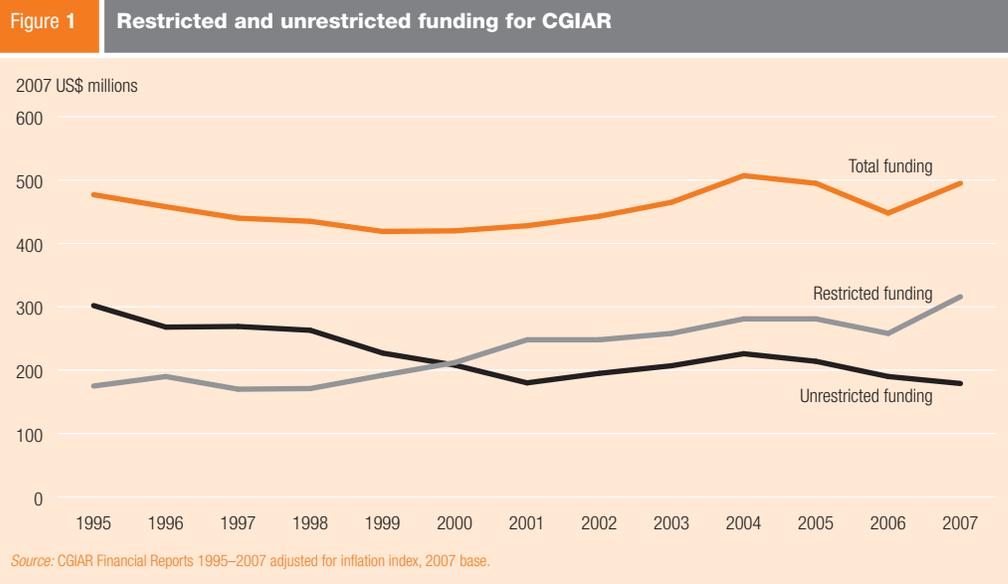
The Panel's analysis indicates that the CGIAR System appreciates gender integration as being important or very important to its research mandate and understands that the CGIAR and the Centers have not been fully effective in integrating gender into their research and outreach. But there is scant evidence to indicate that the contributions of women to agriculture and their special knowledge and needs are addressed at a level commensurate with their importance to agriculture, as recognized by the CGIAR and Center leadership. Institutionally, the CGIAR System has not built on best practice institutional accountability approaches to mainstream gender and to devise special measures, where necessary, to address the specific needs of women and girls. There is misplaced reliance by CGIAR leadership on staff advocacy functions below the executive level in convening Centers and in individual Centers, diverting responsibility from operations. Even so, there is a readiness

to develop a systemwide policy, strategy, and results framework.

Finding 5: The Centers are in a quiet financial crisis

Funding for the Centers has not grown in real terms for more than a decade (figure 1). In contrast, several international development institutions have received record replenishments of their concessionary and grant funds, suggesting that the problem has not been the unavailability of resources but a failure of the CGIAR and Centers to set up institutions that mobilize funds well.

Funding has been increasingly piecemeal rather than strategic. Every review of the CGIAR in the past decade has recommended stronger central coordination of funding and a tighter link between priorities, performance, and fund allocation. Yet funding has become increasingly "restricted," with a proliferation of smaller, targeted grants. While this has benefits for some donors, it means larger administrative costs for Centers, greater financial risk, and less flexibility to follow promising lines of research. It has also resulted in falling capital investments by the Centers at the risk of falling behind scientifically. All growth in funding from nonmembers is restricted. And while so far supporting CGIAR objectives, nonmember funding can also lead to further



fragmentation of CGIAR and Center core objectives.

The CGIAR Centers have been placed in an invidious position by the lack of clear, adequate, and consistent incentives. The discourse of the donor agencies has been rooted in the Paris Declaration principles of alignment, harmonization, devolved ownership, and mutual accountability. The incentives provided to the CGIAR by donors, however, have pushed competition and individual donor ownership, resulting in fragmentation. Many Centers currently manage 200–300 separate, relatively small projects, many with different terms, conditions, requirements, fiscal year reporting schedules, and overhead rates.

There are deficiencies in financial management at some Centers and limited tools for managing financial risk across the partnership. The cross-cutting multipartner Challenge Programs have increased the complexity of the research network and partnership and the difficulty of financial management and control. The ad hoc arrangements for different Challenge Programs do not provide a strong foundation of financial systems to cope with the rising numbers of such programs.

In good times, these would be significant problems. During the current food price crisis, new ideas and approaches are needed even more urgently. Because the problems are interrelated, the Panel believes that the financial challenges can probably be resolved only as part of an overall change in the institutional structure of the partnership. Centers need more resources, larger reserves, and especially more unrestricted funds, but donors are unlikely to provide them without greater assurance of strategic effectiveness and performance. Needed: a new institutional and financial structure with new tools for resource mobilization as part of a general reform package.

Finding 6: Dysfunctional governance and management constrain the System's potential

The CGIAR Charter enshrines what may be called “dispersed governance,” with no

effective locus for systemwide decisions on important governance matters. Because there is no empowered “entry point” into the CGIAR and no accepted leader who can act with authority for the Centers, decision-making is shifted down to individual Center boards or up to the Consultative Group. The expression of collective will of the members is at the Annual General Meeting (particularly its Business Meeting), a large body that can take decisions only by consensus. Specific decisions on vision, partnerships, organizational structure, research activities, and resource allocation are made by the individual boards and managements of the Centers. Between the Centers and the Annual General Meeting of the Consultative Group are bodies fulfilling only advisory or nonbinding oversight and monitoring functions.

The lack of a focal point for Centerwide decisionmaking has several pernicious outcomes. First are high transaction costs, identified by new and existing donors and the sister institutions in the international system as a serious disincentive to working with the CGIAR. Second is the inability of the network of Centers to mobilize quickly to respond to opportunities or to position their collective competence to create opportunities in the rapidly changing context of research for development.

There is no use of modern results-based strategy and management approaches that would help CGIAR entities decide where accountability and responsibility for final results fall between production of the core components and complementary delivery components of the international public goods delivery system.

The CGIAR has attempted reform several times since the mid-1990s, with the twin aims of ensuring strategic relevance and securing adequate, stable, and predictable financing. All efforts proved largely unsuccessful. The CGIAR is once again attempting change through a highly ambitious change management initiative. The Panel considers that a successful outcome will require taking careful account of the lessons of prior efforts: a structural transformation in CGIAR governance

Centers need more resources, larger reserves, and especially more unrestricted funds, but donors are unlikely to provide them without greater assurance of strategic effectiveness and performance. Needed: a new institutional and financial structure with new tools for resource mobilization as part of a general reform package

The Panel recommends a new systemwide governance model based on nine criteria:

1. A single entry point is required to position the CGIAR in international forums and to reduce the transaction costs identified by potential funders and international institutional partners.
2. The functions of governance and management need to be differentiated and clearly separated to avoid conflicts of interest. Donors should not be involved in managing the Centers. Management and responsibility for operations should be separated from oversight.
3. Decisionmaking bodies should be empowered to take binding decisions and have commensurate authority to ensure implementation, at least in clearly circumscribed areas essential for CGIAR System functioning.
4. Governance arrangements require formal foundations—legal in the case of the Consortium—to increase legitimacy and improve effectiveness. This requires establishing rules-based membership conditions that include enforcement mechanisms.
5. Adequate and predictable financing, particularly for international public goods, is required to allow the Centers to retain a cadre of high-caliber scientists to tackle mid- and long-term scientific challenges. Predictable and adequate financing must be earned. Financing arrangements must take full account of the need for donors to demonstrate results and value for money.
6. Paris Declaration principles—alignment of developing country strategic priorities and CGIAR strategy and programs, harmonization of programmatic funding levels and reporting requirements, devolved ownership, and mutual accountability—should be applied to the CGIAR.
7. A fully independent evaluation and assessment function needs to be set up. The Science Council's role as evaluator is incompatible with its role as advisor and honest broker on scientific excellence. The two roles need to be separated.
8. The CGIAR must maintain high standards of excellence in research, while ensuring that key partners use the CGIAR outputs to achieve development impact. The apparent contradiction between focusing on scientific excellence and research achievements and giving priority to achieving development outcomes and results needs to be reconceptualized using advanced models of international public goods and results management.
9. The political viability of implementing the new governance arrangements for the CGIAR should be acceptable to the key players in the CGIAR community. A time-targeted plan to implement the proposed governance reforms should be agreed to and supported financially.

is the key precondition for the success of all other reforms.

Recommendations

Recommendation 1. Rebalance the Center-donor partnership to sustain the CGIAR's unique contributions

A central finding of the Panel is that the 37-year partnership between Members/donors and the research Centers is a robust comparative advantage of the CGIAR. No other international arrangement rivals this common-cause partnership of development agencies and agricultural science with its nearly four decades of accumulated knowledge and social capital. This partnership should be preserved. But it needs rebalancing (box 1).

- The separate responsibilities and authorities of Members/donors and of the Centers need to be clarified and rationalized in a dual structure of a

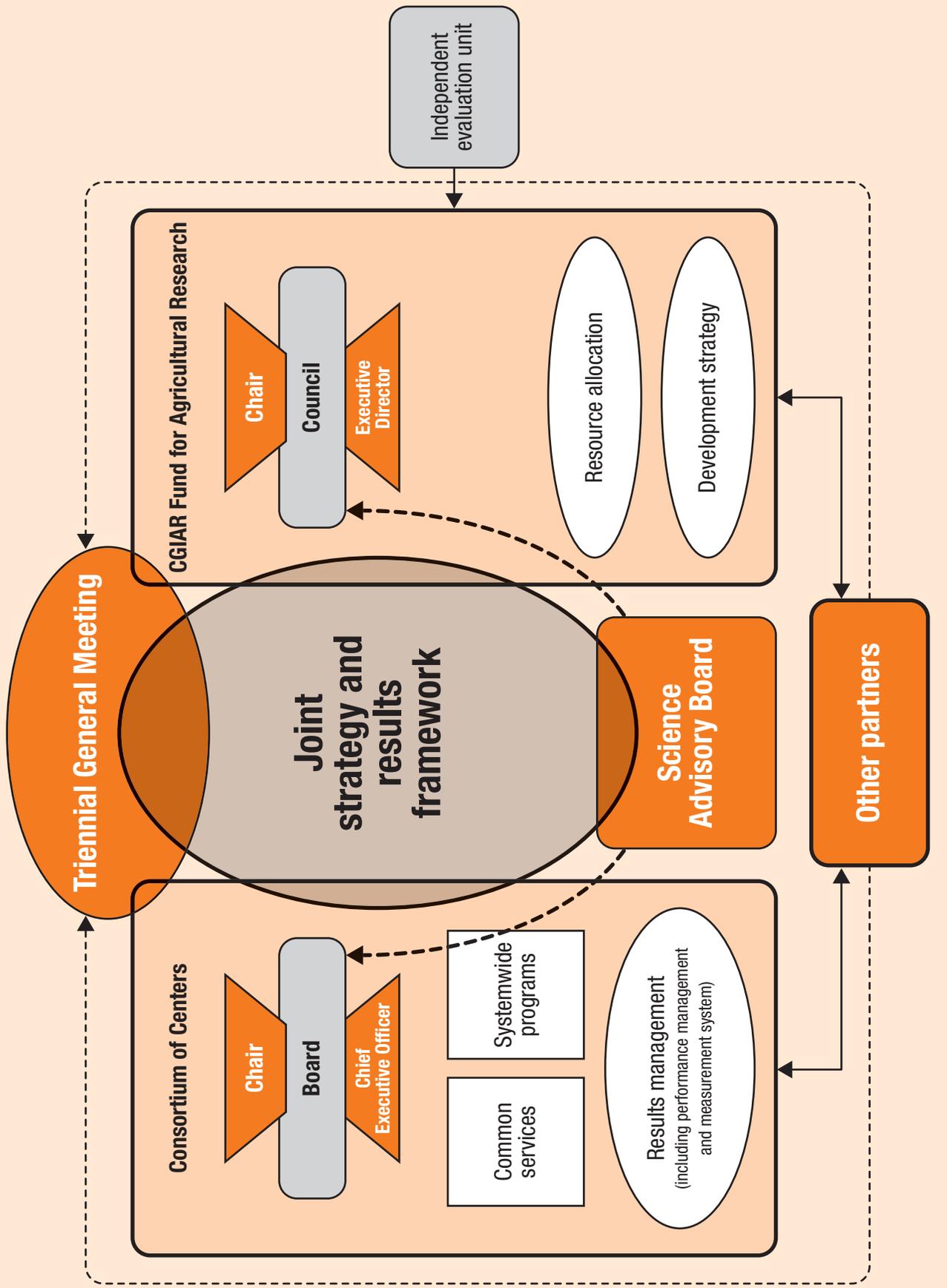
Consortium (a legal entity owned jointly by the Centers) and a CGIAR Fund (formed and managed by donors), with some bridging institutions (figure 2).

- Some common institutions of the partnership need to be maintained.

Donors need to strike a new balance between providing unrestricted resources to the Centers, achieving greater programmatic coherence in funding, and strategically targeting grants. In addition, resource allocation needs to be influenced more by Center performance. In return, the Centers need to work closely together to bring greater coherence to the network, to be more programmatic in their outlook, to make firm strategic and organizational decisions and to demonstrate cost-efficiency. Finally, the Centers cannot be held accountable for the final delivery of their products to the poor, but they do need to be part of a larger strategy and set of arrangements with

Figure 2

A rebalanced model of system governance



donors and other partners to achieve specific development-based outcomes.

After careful consideration, the Panel has concluded that four actions are vital:

1. The CGIAR System should separate governance and management functions. The roles of donors and management should be separated to avoid conflicts of interest. The management responsibility for operations should be separated from oversight.
2. The donors should establish a CGIAR Fund for Agricultural Research as a new channel for predictable, unrestricted funding to Centers and restricted funding to programs. Money should be allocated from the Fund to Centers and to programs in a rules-based manner, partly according to performance. In deciding how much grant funding to channel through the pooled Fund, the donors should keep in mind their Paris Declaration commitment to provide two-thirds of their development aid on a program rather than a project grant basis by 2010.
3. The Centers should strengthen their institutions for common action by consolidating common services, common policy and strategy, and program administration in a jointly owned Consortium.
4. Both donors and Centers should set up decisionmaking procedures based on clear authorities and shared strategic objectives. Nonbinding approaches to decisionmaking are no longer adequate for a collective enterprise that spends half a billion dollars of public money annually, resources set to increase substantially if the foregoing actions are taken.

The Panel has considered whether the recommended approach to governance would be more economical as well as more effective than the existing system. It seems clear that the true costs of governance will be less when the dysfunctions of the current system are remedied.

Recommendation 2. Establish a legally structured Consortium of Centers

Building on the conclusions of prior studies and the lessons of past reform efforts, the Panel recommends establishing a new legally structured Consortium of Centers. It would be owned by the Centers, governed by a board chosen by them, and have a Chair and a Chief Executive Officer chosen through international competition. Its board would be assigned clear decisionmaking authorities, fiduciary, and due diligence accountabilities by the Centers and its decisions on all delegated matters would be binding on members. The Consortium would be rules-bound. As new, high-impact organizations appear over time, the rules should allow for new and expanded membership. It should not be a closed shop.

The Consortium would provide a single point of entry and, in partnership with the Fund, project a single coherent voice in international policy forums, a much stronger position than single Centers can occupy. The Consortium will enable the Centers to manage their common interests more coherently and strategically. In particular, it would provide an instrument for common services, program coordination and administration, and results-based management.

CGIAR Fund-supported programs should have an administrative home in the Consortium.

Many of the CGIAR's main donors will continue to expect consolidations and demonstrations of major cost-effectiveness gains over the next few years, and this will affect decisions on levels of financing. The Panel believes, therefore, that the new Consortium must address as a very high priority the reality of total governance size and costs.

To improve on past performance in specific areas, a new Consortium of Centers should:

- *Improve financial management and financial reporting.* Specifically, the Consortium should evaluate transaction costs of small grants and establish minimum grant requirements, move to full cost recovery on all projects,

increase reserve requirements to 180 days (and should not be penalized for higher reserves), immediately assess the need for capital improvements across Centers, provide more detail in financial reports on nonmember contributions, and develop annual financial statements for Challenge Programs, which should be subject to an annual independent audit.

- *Simplify the Challenge Programs to focus on Center-led consortia.* This change should not reduce the valuable involvement of external institutions in program development and implementation if it is made a condition of program award and if proposals are adequately peer reviewed. It will help make Challenge or “mega” Programs an effective tool of System strategy. Further, the Challenge Programs and Systemwide and Eco-regional Programs (SWEPs) should be integrated into a more strategic (derived from System strategy and strategic objectives) new mechanism for inter-Center programmatic research with partners. Design and management of these programmatic initiatives should be based more on what is required to achieve results and less on a portfolio of specific instruments. The Consortium of Centers could provide a mechanism for managing programs that would avoid conflicts of interest and improve financial oversight.
- Establish common services such as strategic communications, financial reporting, and results management systems, internal audit, information technology, and properly equipped human resources function. The human resources function must ensure equity in internal Consortium and Center hiring, training, and compensation and other rewards. Once established, the new function could prepare gender and diversity policies.

As the new human resources function becomes established, the Gender and Diversity Program should gradually hand over its mainstream activities (such as the staff survey) to human resources.

- Centers should develop a common strategy to protect their internally generated intellectual property and know-how, including filing their own patent applications. The CGIAR must resolve issues related to its policy of making research results publicly available. The interests of the CGIAR and developing countries must be respected, along with the interests of public sector companies. These issues have been pending for more than a decade, and the Panel recommends urgent and decisive attention.

Recommendation 3. Establish a CGIAR Fund for Agricultural Research

The new CGIAR Fund for Agricultural Research would be established under a governing Council that would receive, hold, commit, and allocate financial resources assigned to it in trust. This would be principally a shareholder governing body made up of contributing members, including foundations. An option would be to assign voting shares on the basis of groupings (constituencies) to accommodate both large and smaller shareholders and other stakeholders.

The Fund would work to ensure follow-through on financial pledges, to receive and hold funds provided to the Fund, and to make funds available to the Consortium of Centers. In making funds available, it would apply the conditions and schedules agreed in multiyear financing discussions, including performance- and results-based reporting, milestones, and benchmarks. Together with the Board of the Consortium, it would be responsible for ensuring that transparency and full cost recovery are applied to all financing agreements falling outside of the Fund.

Once allocated from the CGIAR Fund to the Centers, funds should be unrestricted.

The Fund would work to ensure follow-through on financial pledges, to receive and hold funds provided to the Fund, and to make funds available to the Consortium of Centers

The World Bank should chair the new Fund and cochair strategy and replenishment-like triennial meetings with the Consortium

Financial management should be strengthened, partly by giving programs a common administrative home in the Consortium, assuming that the Consortium would have a formal Finance Committee and would be accountable to the Fund for financial management of contributions.

The key responsibilities of the Fund would be to lead funding negotiations, to maintain strong links with the development and research community on poverty reduction, and to create opportunities for complementary programs to support the science and research of the Centres. The Fund would use its development knowledge to allocate its resources to programs and Centers according to agreed criteria and rules.

The main functions to be carried by the Fund would include:

- Establishing a multiyear financing mechanism on the lines recommended in this report and based on the Monterrey principles of good donorship (adequacy and predictability of financing and mutual accountability for results). The aim should also be that such financing equal approximately two-thirds of total CGIAR financing by 2010. The CGIAR Chair would exercise collective leadership in this regard and would provide oversight for establishing the Fund.
- Approving transfers from the Fund to the Consortium based on agreed schedules, performance-based indicators, targeted milestones and reviews of the specific program proposals that would follow from the agreed strategic framework.
- Ensuring accountability and standards of due diligence over all funds held and assigned to the Consortium.

The World Bank should maintain its special relationship with the CGIAR and its affiliated Centers. It should focus its engagement on strategy, resource mobilization and allocation, and building of the substantive links between the Bank and the development community, including its own Agriculture and

Rural Development Department. The World Bank needs to disengage from operational management of the CGIAR network of Centers. The leadership of the World Bank in consultative group arrangements argues strongly that the Bank should assume the leadership of this revitalized and modernized body. The Bank's convening power would be an essential ingredient of success. The World Bank should chair the new Fund and cochair strategy and replenishment-like triennial meetings with the Consortium.

Recommendation 4. Support the Consortium and CGIAR Fund with a science advisory board and an independent evaluation unit

The Panel considered what common institutions should be maintained as part of a strong partnership between the Centers (and their joint Consortium) and the proposed Fund, concluding that there should be at least three:

- A joint strategy and results framework developed for the inaugural conference and renewed preferably as part of replenishment-like negotiations on a triennial basis.
- An independent evaluation unit, reporting to the council of the Fund, but working closely with the board of the Consortium as well.
- A committee of eminent advisors that form a science advisory board. It might be called the Science Council, as at present, or perhaps something broader if the inaugural conference decides to include anti-poverty expertise as well as science expertise.

Joint Strategy and Results Framework: The Panel recommends establishment of a system-wide strategic management for results framework. Strategic results frameworks are the key link between donors and Centers, the glue that holds the CGIAR System together. They should be prepared in consultation with all relevant partners, including those in charge of scientific advice and those responsible for independent evaluations.

Although Centers have put in place strategic planning, management, and performance measurement systems, these are as yet absent at the System level. In addition to guiding priority setting and resource allocation, jointly developed systemwide strategic management for results frameworks provide the means for grounding the mutual accountability between donors and Centers on indicators, facts, and evidence. These, in turn, increase transparency and allow performance assessment of both parties in achieving commonly defined objectives and results. Together with an international public goods delivery system approach, these frameworks inform the design and implementation of partnerships and lead to an effective division of labor between Centers and their partners. They establish clear lines of accountability for activities that are directly under Center control, and of responsibility for influencing partners in those they do not control.

The results framework would be the basis for Performance Contracts between the Consortium and the Fund, against which implementation would be managed and performance monitored. As *managing* for results is essentially a responsibility of *management*, the Consortium should take the lead on performance management and measurement once new systems are established. The Fund should develop its own results framework against which to judge its performance and report to the Consortium on its effectiveness.

Science Advisory Board: This would take up those functions of the current Science Council that are solidly service based and that aim to furnish the Consortium of Centers with the highest caliber of scientific counsel, including the results of foresight exercises to keep the work of the rebalanced partnership “ahead of the curve” on the needs of science for development. This body would provide the CGIAR System with scientific and technical advice and would be a broker to mobilize science and technology for agricultural development.

As required by the Consortium, it would also provide advice in the formulation of

strategy and program proposals. It would not, however, carry out performance evaluations, as is the current practice of the Science Council. This is at fundamental variance with accepted best practice, as it has placed the Science Council in a conflicted position, whereby it provides scientific and programmatic advice, mandates programmatic norms and standards, and evaluates performance arising from its advice but without accountability for the performance.

The Panel recommends that the strategic role of the current Science Council, embodied in the former activities of the Science Council’s Standing Panel on Priorities and Strategies and the Standing Panel on Mobilizing Science, be made the principle role of the future Science Advisory Board. This body should remain an independent advisory body that provides advice to the Consortium of Centers. Its advice will also be useful to the donor Fund, but the Science Advisory Board should not in any way be an instrument of the Fund to organize or conduct monitoring and evaluation of the Centers or Consortium.

A future role for the Science Advisory Board should include strategic studies on issues of potential importance to the CGIAR and to global agricultural research for development. Relative to current Science Council activity, these studies need to be increased and made more timely in their delivery. Most importantly, they need to be developed in consultation with the Centers, with a clear initial understanding of how their results will be used.

The Panel also recommends that the current focus of the Science Council’s Standing Panel on Impact Assessment remain as an activity of the science advisory body as self-assessment assistance. Further, the Panel stresses the need to better assess the impact of all research areas, improving methods and levels of assessment for natural resource management and policy-oriented research and for capacity building, and understanding the contribution of all these research activities to the delivery of specific strategic objectives. In this context, the Panel also recommends

As managing for results is essentially a responsibility of management, the Consortium should take the lead on performance management and measurement once new systems are established

The Panel stresses the need to better assess the impact of all research areas, improving methods and levels of assessment for natural resource management and policy-oriented research and for capacity building, and understanding the contribution of all these research activities to the delivery of specific strategic objectives

continued effort to understand the impact of CGIAR research on poverty reduction. There is a particular need to focus on understanding the impacts of CGIAR research in Africa, given the comparatively low historical impact and recent investment and promising outputs. Finally, the Panel recommends that future impact assessment make efforts to accurately assess environmental, gender, and other indirect effects of agricultural research for development. There are some impact assessment activities that are most appropriately undertaken by the Centers themselves, and the links between the science advisory body and the Consortium regarding impact assessment would need to be worked out in more detail.

Independent Evaluation Unit: The Panel also recommends that an Independent Evaluation Unit be established to conduct systems reviews and to evaluate progress on the Joint Strategy and nested Center and program strategies. That is, as well as conducting overall systems evaluations, it would also take on the Science Council's current role in managing external evaluations of CGIAR activity, including Centers and Challenge Programs. The Consortium of Centers will need to develop their own capacity for results-based performance management and measurement.²

The Independent Evaluation Unit would report to the Council of the Fund. The Evaluation Director would develop an evaluation strategy and work plans with the input of the Consortium, the Fund, and partners for tracking performance of the Consortium and the Fund toward the agreed strategic objectives and desired programmatic outcomes and impacts defined in the strategy and the results framework.

It would follow donor agreed guidelines for evaluating global programs. It would work to reduce transaction costs for the Centers by working toward joint evaluations with donors. It would report triennially on its own results and yearly on the evaluation results of the products set out in its multiyear strategy and on the implementation of the previous

study recommendation. The program would also cover "process evaluations" to cover process effectiveness as well as investment effectiveness.

Recommendation 5. The Consortium and the Fund adopt a gender strategy based on accountability for integrating gender in the work of partnerships.

The Panel recommends that IFPRI, on behalf of the Consortium, develop by 2009 a gender strategy and results framework for inclusion in the new, overarching CGIAR strategy and results management process. IFPRI, along with the Participatory Research and Gender Analysis program, would establish an inter-Center and stakeholder task force to develop Systemwide strategic objectives for gender integration in Center research nested under each of the CGIAR strategic objectives. The task force would review guidelines for all management and accountability instruments to include indicators of achievement of the proposed gender strategy.

The Panel recommends that one of the first mega programs to be developed address the productivity, production, and sustainability issues facing women in agriculture and the special health and nutrition needs of women and girls.

The Panel also recommends expansion of the Gender and Diversity African Women in Agricultural Research and Development (AWARD) Program into a global scientific capacity-building program for women and Group 2 nationals. Through a joint venture with universities in Organisation for Economic Co-operation and Development countries and with centers of excellence in developing countries, this would increase the number of female and Group 2 nationals who earn PhDs in agricultural science, economics, and other agriculture-related disciplines (including health). The Centers could assist Gender and Diversity Program work with donors to match universities and CGIAR Centers where postgraduate research for development can be undertaken and supported.

Recommendation 6. The Consortium and the CGIAR Fund together take a more strategic approach to partnerships with other actors in the production and delivery of international public goods

The CGIAR cannot function effectively as a component of an international public goods delivery system in the absence of robust partnerships that ensure production and scaled up application of public goods. Current ad hoc, short-term approaches to partnerships are unsustainable. The results, relationships, and requirements for strategic partnerships need to be made explicit and operationalized within a results-based performance framework.

- Within the balanced partnership model, the Panel recommends as the highest priority for partnership development in the CGIAR, that partnerships be approached as integral components of a medium-term strategy and results framework.
- The Panel recommends that the CGIAR donor community and the governments of developing countries approach the needs of Africa systemically by assuring adequate provision for institution and capacity building in the partnership among CGIAR, NARS, and advanced research institutes.
- The Panel also recommends the establishment of a separate financing facility as a contingency fund for partnership opportunities, not envisaged in the strategic framework. This would be available, for example, to meet the short-term financing needs of a NARS partnership to test a promising new technology or to gain rapid and timely access to scientific equipment available only in an advanced research institute.
- The Panel recommends a facilitated high-level dialogue with Chatham House rules among representatives of civil society organizations, the private sector, representatives of Centers and the Consortium, and independent

experts on intellectual property rights. A multistakeholder dialogue can be used to achieve greater clarity on the nexus between intellectual property rights and public agricultural research.

- The Panel recommends the CGIAR continue to apply its new policy for building partnerships with nongovernmental organizations. The systematic nature and concrete steps proposed in the policy should be applied and tested over time. The Panel accords particular importance in this regard to conducting regular three-year evaluations of CGIAR–nongovernmental organization partnerships. At least the first such evaluation should be conducted on an independent basis.

Moving forward with a balanced partnership

From the Members' perspective, in accepting a rebalanced partnership, Members would achieve four benefits:

- First, Members would have an instrument, the Fund, to achieve the quantum advance in the funding of research in agriculture and natural resource management that climate change and the current crisis in food prices demand.
- Second, strategic allocation of pooled funds would enable a programmatic approach to investment in agricultural and natural resource management research for development.
- Third, authorities would be clarified and accountability enhanced.
- Fourth, members would be freed from management responsibilities, which would be assumed by the joint Consortium of the Centers. This would be a significant gain in time and energy. Members would be able to focus their energies on development strategy, resource allocation and

Members would be able to focus their energies on development strategy, resource allocation and oversight—matters that are more important and much more appropriate to them than micromanagement of Center network operations

The Centers would “up their game” by focusing on large regional and global challenges. In doing so, their stature and relevance would increase in the eyes of the international community

oversight—matters that are more important and much more appropriate to them than micromanagement of Center network operations.

Members would accept the loss of some powers in return for gains that are more important to them. They would:

- Give up their quasi management of Center affairs.
- Face a stronger, more confident and probably more assertive network or partnership of Centers.
- Relinquish some sovereignty because financial contributions that were previously direct from individual Members to Centers would now be partly shared in the pooled Fund. But members would still exercise strategic sovereignty through their agreed resource allocation framework.

In summary, the Members would be relieved of management responsibilities and the conflicts of interest that attend them. Instead, they would have an appropriate instrument for results-based resource allocation (the Fund). The pooled Fund would enable Members to institute a results-based framework, within which they could exercise due diligence on development “value for money” from the Centers. They would be working within a governance structure more in accord with the spirit of the Paris and Monterey Declarations, which encourage harmonization and encourage Members to focus on strategy, resource allocation, and oversight rather than on the ownership of projects and operations.

From the Centers’ perspective, in accepting the balanced partnership model, the Centers would gain certain benefits:

- The Centers would “up their game” by focusing on large regional and global challenges. In doing so, their stature and relevance would increase in the eyes of the international community.
- They would have access to a major new source of unrestricted and restricted money through a new pooled Fund with the objective of substantially

increasing the total funding of the Centers and Programs within the first commitment and pledging period.

- They would enhance their comparative strategic advantage, not only by the capabilities made possible by substantial incremental funding, but also by having a single entry point and single voice in international forums. The brand and coherence of the network or partnership would be enhanced.
- They would be served by common services owned by them.
- They would have a stronger role in the joint management of programs.

But accepting the rebalanced partnership model of governance for the common good and mission would involve tradeoffs for the Centers:

- They would cede some important decisionmaking powers to the joint Consortium.
- They would accept that much of the flow of unrestricted and restricted (programmatic) funds would come through the CGIAR Fund, rather than directly from individual members, and that it would be allocated by members strategically, partly according to Center performance and program performance.
- They would take more responsibility, individually and collectively, for financial risk management, and there would be a lower probability of a bailout if a Center had serious financial difficulties.
- They would pay significant fees and levies to the joint Consortium, to cover its operations, including joint services to the Centers and administering programs. These expenditures might be partly (or mostly) compensated by transfers to the Centers of funds that previously have gone directly to pay for system management. But there might be significant incremental costs to the Centers.

In summary, authorities and responsibilities in the new model of governance would be clarified and rebalanced to the long-term benefit of all parties.

Transition arrangements

There is now a window of opportunity for the reformation of the CGIAR. The current world food price crisis demands immediate action. Therefore the Panel recommends that funding be made available to exploit existing programming and to accelerate program design to fully engage past investments and to engage cutting edge science.

If the CGIAR and the Centers decided to move to a partnership structure similar to the one outlined here, the Panel recommends an eight-month transition to bring the new structures into existence. The process would entail two six-person task forces, one led by the World Bank to propose the details of the Fund and the other led by a chairperson designated by the Centers to formulate the details for legal incorporation in a jurisdiction that it would determine in consultation with the Centers. The task forces would present their proposals to the inaugural conference for the launch of the compact.

The Panel believes that all aspects of the new governance system cannot be decided in the absence of serious discussions between the Member/donors and the Centers. In this spirit the Panel recommends an inaugural conference to reach agreement on a new reform compact for the rebalanced partnership and the requirements for its implementation.

In the future a triennial assembly of all stakeholders would be organized and co-chaired by the chairs of the Fund and the Consortium. Its purpose would be to present and seek feedback on strategies and programs and to review all matters of interest to the well-being of the CGIAR partnership. This could also seek to bring together the leaders of the leading organizations concerned with agricultural research and development, food security, and the interface between agriculture

and natural resource sustainability and major international research networks.

Getting on with it

Real progress cannot come one institution at a time. The CGIAR Centers need to lift their partnership game at all levels and with the private sector and nongovernmental organizations. But they cannot reform on their own. Nor can they address global challenges without institutional supports from their global partners. The next step is for the governments responsible for the five organizations comprising the core entities of the international agriculture architecture to review the recent evaluations of the International Fund for Agriculture Development, the Food and Agriculture Organization, the World Bank, the World Food Programme, and the CGIAR to determine how these important institutions can be better supported to work more effectively within more nimble, mission-directed, and integrated international structures.

Within this broad reform agenda, the CGIAR must enhance its global leadership. Science (including that for policy and institutional innovations) will be at the heart of faster productivity growth, adaptation to climate change and the use of scarce water. The priority challenges are becoming more transnational in scope, putting a premium on regional and global collective action and on the development of international public goods.

The Panel's main message is that change at the CGIAR is essential—and possible. Get on with it.

Notes

1. Nested frameworks from overarching strategy to Center and program strategy would guide the achievement of agreed strategic objectives. The results systems should first and foremost serve the management of the Centers to guide staff and secondly to demonstrate development impact achieved with partners. Efforts should be made to reduce reporting at each level of the system to just what is needed at the next to make decisions.
2. Governance is making sure an organization is doing the right things; management is making sure the organization is doing them right.

The Panel believes that all aspects of the new governance system cannot be decided in the absence of serious discussions between the Member/donors and the Centers. In this spirit the Panel recommends an inaugural conference to reach agreement on a new reform compact for the rebalanced partnership and the requirements for its implementation

Introduction

The Consultative Group on International Agricultural Research (CGIAR) was created in 1971 as an informal partnership among governments, private foundations, and international organizations interested in supporting agricultural research for developing countries through a small network of international agricultural research centers. The CGIAR System (the Consultative Group and the Centers) was guided by an independent Technical Advisory Committee. Since then, the CGIAR System has grown to include 64 Members, 15 research Centers, and an independent Science Council. It is supported by an Executive Council, a System Office, and various standing and ad hoc committees.

The CGIAR periodically commissions independent reviews. The most recent systemwide review (the Third System Review) was completed in 1998. In 2003, the World Bank's Operations Evaluation Department conducted a meta-evaluation of the CGIAR System as part of a larger study of the World Bank's involvement in global programs. Thus, this is the first full-fledged systemwide review of the CGIAR in 10 years.

Today, the CGIAR operates in a very different context from that in 1971. New issues have come to the fore, putting at risk gains in agricultural productivity and related poverty reduction. These include greatly increased populations in some countries, loss of arable land to urbanization, increased pollution and degradation of water and soils, climate change, and rising demand for biofuels. Yet, official development assistance to agriculture and agricultural research has stagnated in real terms.

Objectives of the Independent Review Panel

The Independent Review Panel was asked to “assess whether the CGIAR is well positioned to address emerging food security and agriculture-related problems of developing countries.” The objectives of this Review were to take stock and assess the efficacy of the partnership, to assess the effectiveness of the CGIAR research, and to recommend changes in the CGIAR System to improve its efficacy and effectiveness for dealing with the emerging challenges for food security, agriculture, and natural resource management of the poor.

The terms of reference for this evaluation cover three linked topics:

1. Governance, partnership, management, and alignment of the CGIAR.
2. The scientific work of the CGIAR.
3. Partnerships (national agricultural research systems, advanced research institutes, the private sector, and non-governmental organizations).

The Panel's terms of reference included questions on the positioning of the CGIAR along the research to development continuum. The Panel assessed whether the CGIAR System remains relevant and well positioned to make its best possible contribution to the agricultural research needs of developing countries, including natural resource management, and, ultimately, to support the food security of poor people around the world.

Review standards and methodology

The standards for an independent review have evolved since the Third System Review 10 years ago. In this Review, the Panel was guided by the World Bank Independent Evaluation Group's guidelines for the review of global partnership programs and the Organisation for Economic Co-operation and Development–Development Assistance Committee criteria for evaluations.¹

As with previous independent reviews, the Panel did not conduct or commission direct measures of the impact of the CGIAR Centers and programs but relied largely on existing evidence. Box 1.1 lists the main sources of information used by the Panel during the Review.

Participation and inclusion

The Panel sought input from a broad range of stakeholders, both internal and external to the CGIAR, from both industrialized

and developing countries. The Panel visited eight Centers, surveyed some 240 stakeholders directly involved in the CGIAR System through a written survey,² interviewed more than 300 people, and conducted a stakeholder workshop to solicit feedback on its draft Technical Report. People consulted during the Review are listed in appendix 4.

Scope and limitations of the Review

The Independent Review of the CGIAR System had an appropriately broad scope, similar to that of the three previous comprehensive reviews. But the time allocated for the Review was short relative to the breadth of the terms of reference, previous reviews, and reviews of similar scope of other global programs and institutions. The members of the Panel were unable to work full-time on the Review because of other senior-level responsibilities they had to manage at the same time. Finally, it was a challenge to conduct the Review

Box 1.1

Sources of information for the Independent Review

- CGIAR Performance Measurement System and other information on the accountability and transparency of the CGIAR System.
 - Review of the extensive literature of reports previously commissioned by the CGIAR or by the CGIAR's stakeholders and shareholders,¹ and other documents relevant to the development impact of the CGIAR.²
 - Examination of previous independent reviews and major evaluations conducted by CGIAR Members, including the independent World Bank Operations Evaluation Department Meta-evaluation of the CGIAR.
 - Evaluations of other global programs, including the recent independent evaluations of IFAD (2005) and FAO (2007).
 - The *World Development Report 2008* analysis of the effectiveness of the World Bank in the agriculture and rural development sector, and the 2007 Independent Evaluation Group Report "World Bank Assistance To Agriculture In Sub-Saharan Africa."
 - Examination of financial information from the CGIAR System Office and the Centers.
 - Information on and recent reviews of governance and management of the CGIAR System.
 - Documents on financial risk management.
 - A written survey seeking the views of all those involved directly in the CGIAR System since 2001.
 - Structured Interviews with stakeholders and shareholders.
 - Visits to and interviews with the cosponsors, the CGIAR's administrative and coordinating units, CGIAR scientists and management at CGIAR-supported Centers and national agricultural research systems, and others involved with the Centers.
 - Inputs by consultants to the Panel.
 - Participation of the Panel Chair in the Steering Committee of the Facilitated Change Management Process.
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1. Core CGIAR documents (for example, Charter), CGIAR/Executive Council decision records, reports of previous reviews and studies (for example, System Office, Stripe Review of Corporate Governance of CGIAR Centers), and the general literature of agricultural research and development impact.
 2. Reviews of Centers External Program and Management Reviews, external reviews of the Challenge Programs and Systemwide and Ecoregional Programs, and evaluations of impact and other CGIAR evaluations, including evaluations done by Centers to assess the impact of the CGIAR on poverty reduction.

simultaneously with the Facilitated Change Management Process. The Facilitated Change Management Process has rightly captured the attention, enthusiasm, and resources of the CGIAR. However, the time and energy that went into that process diminished the support that would otherwise have been available to the Review. On the positive side, the concurrent nature of the exercises created an openness in the CGIAR System that had not existed during past reviews.

Notes

1. See comments in World Bank (2003); OECD/DAC (1999, 2002, 2004, 2006); <http://www.worldbank.org/ieg/grpp>.
2. The survey was sent to 237 individuals in five target groups: the Executive Council and other member representatives, board chairs and Center executives, Challenge Program representatives, the Science Council, and professional

staff. The overall response rate was 85 percent (201 responses). The intent was to examine how well those knowledgeable about or directly involved in managing the CGIAR network think it is being managed and what corrective steps might be taken to improve this. Others involved in the network—such as the large number of scientists doing Center work, their partners (such as those working in the national agricultural research systems and advanced research institutes), or the direct beneficiaries of their efforts (such as farmers and fishers)—were not asked to respond. However, Panel members did interview Center scientists, partner representatives, and others in person during visits as part of the Independent Review process. Their opinions did not differ substantially from those of survey respondents. Survey questions focused on the development and implementation of Center research priorities; the roles of the World Bank (financial and other); gender and diversity; the role and effectiveness of Science Council, of CGIAR partnerships, and of CGIAR Members and cosponsors; the Challenge Programs; funding and financial management; and governance reform. Several questions compared the importance of an issue with the effectiveness or adequacy with which it is being addressed. Over one-third asked respondents to select possible actions that might deal with the issues identified and invited them to comment on these and related concerns.

All institutions, including the CGIAR, are lagging behind in the ability to respond to today's challenges. There has never been a better time for the CGIAR to re-assert its role and relevance and redefine its vision and strategy

Agriculture returned to the international spotlight in 2008, when food riots erupted in many poor countries in response to a dramatic spike in food prices. The underlying causes are structural, and the problem will not be quickly corrected. All this heightens the need for coordinated efforts across sectors and institutions. But the institutions and mechanisms to implement and finance the global agenda were developed for a very different world. All institutions, including the CGIAR, are lagging behind in the ability to respond to today's challenges. There has never been a better time for the CGIAR to re-assert its role and relevance and redefine its vision and strategy. Three broad principles should orient the CGIAR's response to these challenges.

1. Reforms of the global organizations responsible for agriculture need to be conducted holistically, to clearly establish comparative advantages and areas of expertise.
2. Specialized global organizations for agriculture will have to work together more effectively and with specialized agencies in other sectors.
3. The emerging global architecture will need to be able to respond rapidly to emergencies of global scope and to make sustained investments over decades to address some of the difficult challenges, such as adaptation to climate change and biotechnology for the poor.

Within this broad reform agenda, the CGIAR needs to enhance its global leadership role. Science will be central to the solution to many challenges, such as faster productivity growth, adaptation to climate change, and use of scarce water. And priority challenges are

increasingly transnational in scope, emphasizing regional and global collective action and the development of international public goods, areas of the CGIAR's comparative advantage.

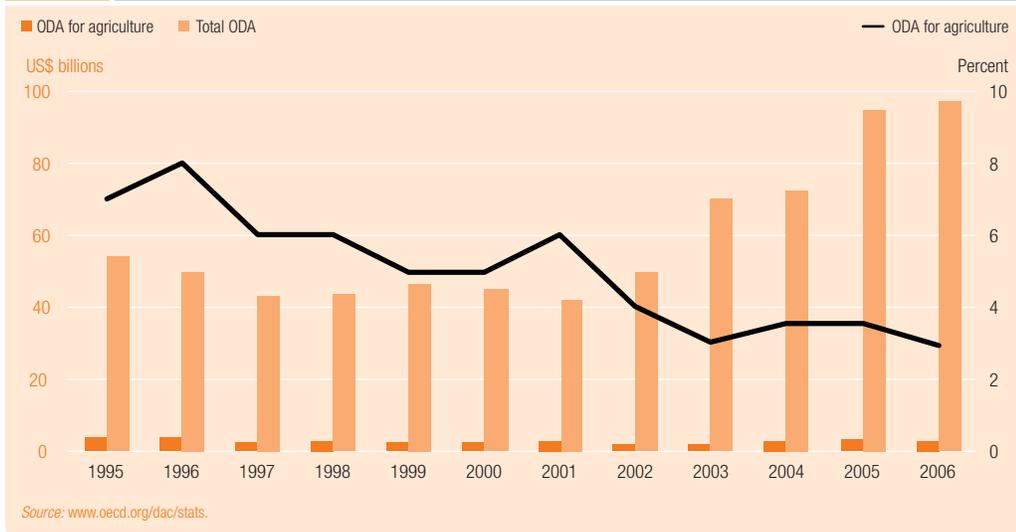
Global food security: turning full circle

In the early 1970s, when the CGIAR was created, there was deep concern about global food security and the prospect of famine in developing countries. Agriculture stood at the center of the international political economy. By 1982, agriculture was receiving the largest sectoral share of official development assistance, at 17 percent.

Much of the concern vanished with the green revolution of the 1980s. From 1980 to 2005, agricultural production expanded globally by an average of 2.2 percent a year, faster than the population growth of 1.7 percent a year. This rapid agricultural growth pushed down the real price of grains in world markets some 1.8 percent a year, even as crop land per capita declined 40 percent over the same period.

These impressive successes, however, soon turned to neglect. The share of official development assistance for agriculture stalled and then declined steadily to less than 2.9 percent in 2006 (figure 2.1). As the priorities of the development community shifted to other emerging goals, especially poverty, health, and environmental sustainability, total official development assistance (expressed in 2002 US dollars) to agriculture declined from \$6.2 billion in 1980 to \$2.3 billion in 2003. Over the same period, multilaterals cut their assistance to agriculture from \$3.4 billion to \$0.5 billion (an 85 percent drop).

Figure 2.1 Official development assistance (ODA) to agriculture, 1995–2006



These overall trends have been reflected in the trajectory of the CGIAR. Following 20 years of continuous program growth and budgetary expansion, CGIAR financing experienced a rapid deterioration, which led to a severe financial crisis in 1994. The CGIAR’s share of publicly funded agricultural research in developing countries fell from about 10 percent in 1980 to 1.5 percent in 2000.¹

Today, history is repeating itself. Agriculture returned to the international spotlight in 2008, when food riots erupted in many poor countries in response to a dramatic spike in food prices. The causes and effects of what has been called the “food price crisis” are global, however. The negative effects are being felt throughout the world. Its underlying causes are structural, and the problem will not be quickly corrected. These causes include high oil prices and a shift toward biofuels, but there are also much deeper structural factors.

Aggregate demand for food is now higher than at any time during the past half century, and since 1984 population growth has exceeded food production growth. Growth in demand for food over the past half century has been about 1.5 percent a year, rising recently to 2 percent and is forecast to rise as high as 2.6 percent within a decade, driven mainly by rapidly expanding affluence in developing countries, especially China and

India.² The World Bank estimates that food production will need to grow by another 50 percent by 2030 to keep pace.³

But rising demand alone is not the major challenge, since demand is projected to grow more slowly than it has over the past 20 years, although much depends on when second-generation biofuels using crop wastes and other feedstocks become profitable.⁴ The real challenge to the future of food production and global food security comes from rising demand combined with severe constraints on the supply-side. Among the key supply side factors are acute resource constraints, slowing technical change, uncertain effects of climate change, high energy prices, and lagging regions.

These factors have moved issues of agriculture and food security back to the center stage of the international political economy. At the recent Group of Eight Summit, world leaders announced their commitment to address this “multifaceted and structural crisis.” World Bank President Robert Zoellick has called for “a new deal of global food policy,” warning that a failure to act could result in the loss of the poverty reduction gains of the last decade. In the same statement, he called for a doubling of financing for the CGIAR.⁵

These factors have also dramatically altered the context in which the CGIAR operates.

The agricultural development agenda includes more than restoring global food security. It includes other critical global challenges, some well known and others just emerging, relating to poverty, environmental sustainability, human health, and gender (box 2.1).

Both short-term and long-term factors are driving the current food crisis. The crisis requires emergency responses, such as emergency aid, safety nets, and crash production programs. But over the long term, sharply increased and better coordinated global investments are urgently needed to address critical challenges to global food supply. A revitalized CGIAR would be uniquely well positioned to lead the attack on many of these challenges.

Dramatic recent changes in global agriculture present a major opportunity—and obligation—for CGIAR leadership

When the CGIAR was established in 1971, it occupied a unique position in the international

development architecture (see box 2.2 for a brief profile of the CGIAR system and table 2.1 for an overview of the 15 Centers). No longer. The relative importance of the CGIAR, measured by its financial share of agricultural research and development (R&D), has diminished over the past 15 years. At the same time, the international development architecture has become populated by a multitude of new actors. The international development directory⁶ now lists more than 50,000 entities involved in international development. Most are nongovernmental organizations, and many are directly engaged in rural development and agricultural work. Some large nongovernmental organizations are now better financed and more influential than many long established agencies, including bilateral donors.

In agricultural research for development, the research systems in Brazil, China, India and some other developing countries have become world leaders and could become leading sources of new technologies and knowledge

Box 2.1

The changed context for agriculture: key factors and challenges

Uncertain effects of climate change: Global climate change has introduced major uncertainties for agriculture. The combined effects of higher average temperatures, greater variability of temperature and rainfall, more frequent and intense droughts and floods, and reduced availability of water for irrigation could be devastating for agriculture in many tropical regions. Unless current trends are reversed and new agricultural technologies developed, the recent Fourth Report of the Inter-Governmental Panel on Climate Change points to the risk of famine for hundreds of millions.

Slowing of technical change: The yield growth for the major cereals has slowed sharply since the 1980s in most developing countries, suggesting that the easy gains from the green revolution inputs have already been realized, except in Africa. Resistance to new products of biotechnology is also a factor in slowing the pace of technical change.

Access to new science in an era of privatization: Much of the molecular biology revolution is driven by multinational, private sector firms, and the patenting of new tools and technologies is now the norm in developed countries. A major challenge in harnessing these technologies to benefit the poor is to develop a new “global commons” of tools and technologies and to find

ways to provide ready access by developing countries to genes and techniques protected by intellectual property rights.

Gender: The design of technologies rarely takes account of the special needs of female farmers and laborers. The increasing commercialization of agriculture and the growing importance of rural labor markets and migration as pathways out of poverty will accentuate these disadvantages.

New market structures: The institutional setting for technological innovation is changing rapidly. With the development of markets and integrated supply chains, innovation becomes driven less by science (supply side) and more by markets (demand side). The challenge is to link science to users both within and outside agriculture—including farmers, consumers, and market agents—in an innovations systems framework.

Health risks from agricultural practices: Many agricultural practices pose threats to the health of the rural poor. Irrigation can increase the incidence of malaria, and pesticide poisoning is estimated to cause 355,000 deaths annually. Zoonotic diseases such as avian influenza that arise from the proximity of humans and animals pose growing threats to human health.

Created in 1971 as an informal association of 17 donors supporting four international agricultural research centers, the Consultative Group on International Agricultural Research (CGIAR) was to serve “both as a mechanism for coordinating donor policies and actions and as an informal forum for discussion.”¹ Since then, it has expanded to 64 Members (25 developing countries, 22 industrialized countries, 4 private foundations, and 13 regional and international organizations) supporting 15 Centers (see table 2.1).

Today, the mission of the CGIAR is “to achieve sustainable food security and to reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.” The CGIAR’s six founding governing principles—Member sovereignty, Center autonomy, independent scientific advice, consensus decisionmaking, informal status (the 15 Centers are the only legal entities), and nonpolitical nature—remain in force, although some are under review in the current change management process.

The CGIAR System includes the CGIAR Members, the 15 Centers, and the Science Council, which provides independent scientific advice. An Executive Council, standing committees, and a System Office provide administrative support. The CGIAR System is chaired by the World Bank and cosponsored by the Food and Agriculture Organization, the International Fund for Agricultural Development, the United Nations Development Programme, and the World Bank.

The CGIAR’s research agenda received \$495 million in funding in 2007, \$437 million (88 percent) from Members and \$57 million (12 percent) from nonmembers. The European Community, United States, World Bank, United Kingdom, and Canada were the top five donors in 2007, accounting for half of all funding. Developing country Members contributed 3 percent of funding. While overall funding has increased in nominal terms, the Centers’ inflation-adjusted buying power has remained flat. Project-based or restricted funding has risen as a share of total funding in recent years, reaching 64 percent in 2007, leaving 36 percent of funding unrestricted.

In 2007, the ecoregional Centers accounted for the largest share (33 percent) of total funding, followed by the commodity Centers (31 percent), natural resource management Centers (19

percent), and policy Centers (18 percent). On a regional basis, 48 percent of CGIAR investment is directed to Sub-Saharan Africa.

Besides research undertaken by individual Centers, CGIAR research includes 17 Systemwide and Ecoregional Programs, such as Alternatives to Slash and Burn and the Rice-Wheat Consortium for the Indo-Gangetic Plains, and such inter-Center initiatives as the Systemwide Information Network for Genetic Resources and the Consortium for Spatial Information. The CGIAR also supports four Challenge Programs, time-bound, independently governed programs of high-impact research that target CGIAR goals on complex issues of overwhelming global or regional significance that require partnerships among a wide range of institutions to deliver their products. These four are Water and Food (improving the productivity of water in river basins in ways that are pro-poor, gender equitable, and environmentally sustainable), Generation (using plant genetic diversity, genomic science, and comparative biology to develop technologies to help plant breeders in developing countries produce better crop varieties for resource-poor farmers), HarvestPlus (using biofortification to increase levels of micronutrients to improve human nutrition by breeding new varieties of staple food crops consumed by the poor), and Sub-Saharan Africa (addressing key constraints to reviving agriculture in Africa—failures of agricultural markets and policies, natural resource degradation—through integrated agricultural research for development). The Executive Council recently approved development of a Challenge Program on Climate Change.

Eleven Centers together maintain more than 650,000 samples of crop, forage, and agroforestry genetic resources, held in trust in the public domain on behalf of humanity. The 15 Centers have more than 200 regional or country offices in some 68 countries worldwide, 75 percent of them in Sub-Saharan Africa and Asia and Pacific. They employ 7,716 staff, 3,300 of them scientific staff. Eighteen percent of managers are women, and 35 percent are developing country nationals. The Centers collaborate with a wide range of partners.

1. The Charter of the CGIAR System, March 2007, p. 2.

for other countries and regions. The Brazilian Agricultural Research Corporation (EMBRAPA) has launched programs in Africa and has a budget more than three times larger than the CGIAR’s. Regional research organizations and networks are also playing a much greater role, while many developing countries, including several in Africa, now

have national agricultural research institutes with solid capabilities. The private sector, as noted in box 2.1, is at the forefront in molecular biology research, which holds the greatest promise for future food security. And new philanthropic actors, such as the Bill & Melinda Gates Foundation, are becoming major players in financing international agricultural

Table 2.1 The Consultative Group on International Agricultural Research Centers

Center	Headquarters' location	Year established	Year joined CGIAR	2007 funding outcome (US\$ millions)	Mandate
Commodity Centers					
Africa Rice Centre (WARDA)	Cotonou, Benin	1970	1975	10.2	Rice production in West Africa
International Maize and Wheat Improvement Center (CIMMYT)	Mexico City, Mexico	1966	1971	43.3	Wheat, maize, triticale
International Potato Center (CIP)	Lima, Peru	1970	1973	26.0	Potato, sweet potato
International Livestock Research Institute (ILRI)	Nairobi, Kenya	1995 ^a	1995	35.2	Livestock diseases, cattle, sheep, goats, feed and production systems
International Rice Research Institute (IRRI)	Los Banos, Philippines	1960	1971	32.5	Rice and rice-based ecosystems
Ecoregional Centers					
International Center for Tropical Agriculture (CIAT)	Cali, Colombia	1967	1971	45.1	Beans, cassava, tropical forages, rice, hillsides, forest margins, savannas
International Center for Agricultural Research in the Dry Areas (ICARDA)	Aleppo, Syria	1975	1975	27.7	Barley, lentils, fava beans, durum and bread wheats, chickpeas, pasture and forage legumes; small ruminants; on-farm water management; rangelands
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	Patancheru, India	1972	1972	37.4	Sorghum, pearl millet, finger millet, chickpea, pigeon pea, groundnut; sustainable production systems for the semi-arid tropics
International Institute of Tropical Agriculture (IITA)	Ibadan, Nigeria	1967	1971	45.1	Soybean, maize, cassava, cowpea, banana, plantain, yams; sustainable production systems for the humid lowland tropics
Natural resource management Centers					
Center for International Forestry Research (CIFOR)	Bogor, Indonesia	1993	1993	18.2	Sustainable forestry management
International Water Management Institute (IWMI) ^b	Colombo, Sri Lanka	1984	1991	23.5	Irrigation and water resource management
World Agroforestry ^c	Nairobi, Kenya	1977	1991	31.5	Agroforestry; multipurpose trees
WorldFish ^d	Penang, Malaysia	1977	1992	15.1	Sustainable aquatic resource management
Policy Centers					
Biodiversity ^e	Rome, Italy	1974	1974	39.0	Plant genetic resources of crops and forages; collection and gene pool conservation
International Food Policy Research Institute (IFPRI)	Washington, DC, United States	1974	1980	46.4	Socioeconomic research related to agricultural development

a. Created in 1995 through the merger of the International Laboratory for Research on Animal Diseases (established in 1973) and the International Livestock Center for Africa (established in 1974).

b. Formerly the International Irrigation Management Institute (IIMI)

c. Formerly the International Centre for Research on Agroforestry (ICRAF)

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

e. Formerly the International Plant Genetic Resources Institute (IPGRI), and previous to that, the International Board on Plant Genetic Resources (IBPGR).

Source: OED 2003; www.cgiar.org; CGIAR Secretariat.

research. The Gates Foundation has decided—so far at least—not to become a Member of the CGIAR.

Thus the CGIAR today is in a very crowded field with numerous alternative supply sources for the goods and services it provides. In its early years, the CGIAR's main focus was on increasing the productivity of cereal crops. In the vanguard for this work

were the four original founding Centers, and CGIAR's reputation to this day continues to derive mainly from the achievements of that period. With expansion in the 1970s and again in the 1990s to reach the current 15 Centers, the system became more administratively complex and more expensive. Financing became accordingly more complex and problematic. Restrictions to available financing

created increasing competition among Centers, and restricted or project funding grew steadily as a percentage of the total. At the same time, emphasis shifted from crop productivity to reflect changes in donor priorities in sustainability, natural resource management, participatory- and community-based research, micronutrient nutrition, income distribution, and poverty reduction.

The dramatic recent changes in the global agricultural situation represent not only a major opportunity but also an obligation for the CGIAR to provide leadership. As the CGIAR itself recognizes, there has never been a better time for the CGIAR to re-assert its role and relevance and redefine its vision and strategy.⁷ But this cannot be “business as usual.” As *World Development Report 2008* notes, “the emerging global agenda for agriculture has new challenges, driven by new actors, cutting across sectors.”⁸ Many of the challenges are interrelated, with environmental, poverty, and gender dimensions, and many intersect with human health.

All this heightens the need for coordinated efforts across sectors and institutions. But the institutions and mechanisms to implement and finance the global agenda were developed for a very different world. All institutions, including the CGIAR, are lagging behind in the ability to respond to today’s challenges. How can they be reformed to respond to the new political and economic realities?

Findings on continued relevance: need to function more as a system

With both the context and the CGIAR’s position in the international architecture for agricultural research having changed dramatically, the principal challenge for the CGIAR is to continue to occupy a strong position of comparative advantage. Attention to the risk of changing circumstances to the system’s comparative advantage was raised in the World Bank’s 2003 meta-evaluation, which noted that “the CGIAR has a strong comparative advantage and core competency in germplasm research and in research

activities of a transnational scope that draw on its unique germplasm collection. Many of its new research areas—not yet evaluated—involve the CGIAR in providing small-scale activities at the national or sub-national level, areas where national agricultural research systems normally have a comparative advantage and core competencies.”⁹

Since the World Bank’s 2003 evaluation, many of the CGIAR’s newer areas of endeavor have been evaluated and some of the results are very encouraging (see chapter 3). Nevertheless, a recent review prepared as background for *World Development Report 2008* still concluded that the CGIAR has been losing comparative advantage and that it is in urgent need of a course correction. That report stated “the comparative advantage of the CG system does not appear to have been a major criterion in more recent decision-making. An apparent abundance of research resources may have led to a perception that there was no opportunity cost to accommodating the newer political agendas in the system. This perception was clearly wrong.”¹⁰

A second recent review by IFPRI went further in examining the place of the CGIAR in the international architecture. It concluded that the CGIAR has lost strategic direction and that “it is no longer in a strategic position to exercise the leadership envisaged for it by its original architects.” The review implies a negative response to its question of whether it is too late to re-assert comparative advantage and leadership. It positions the answer within the larger context of an international approach to agricultural R&D in general and states that “it is time to rethink international approaches to agricultural R&D, both because of the changes that have taken place within the CG system and the changing context in which it will have to operate.”¹¹

The Panel agrees. It finds that the CGIAR System continues to provide a broad range of goods and services that add value. And it concludes that a major source of CGIAR comparative advantage is the 37-year-old partnership between the Centers and the international donor community: no other arrangement

There has never been a better time for the CGIAR to re-assert its role and relevance and redefine its vision and strategy. But this cannot be “business as usual”

rivals the accumulated social capital of this collaboration between agricultural research and public financing for international public goods.

The Panel also finds, however, that the CGIAR is a system adrift. The donor-doer partnership has become fragile, and the system as a whole is seriously underperforming. Individual Center strategies exist, but the whole has become considerably less than the sum of the component parts. There is no systemwide strategy, and the CGIAR has been largely absent from the main debates and international forums on agriculture for development. The current situation is well described by the warning of former CGIAR Chairman Ismail Serageldin, in his 2000 farewell speech to Members, that the CGIAR faces “the prospect of . . . gradually fading into obsolescence and, ultimately, oblivion, while other actors, more swift, better endowed, and more responsive to the needs of our clients, pass us by.”¹²

The changed international context for agriculture, including the risks of climate change

to food security and food adequacy, means that the need for new agricultural technologies has never been greater. This presents the CGIAR with a once in a lifetime opportunity to play a major role in responding to new challenges. To do so, it will need much more robust strategies and a much sharper delineation of its comparative advantage. The system will need to function far more as a system.

Notes

1. Pardy et al. (2008).
2. Currie (2007).
3. World Bank (2008).
4. World Bank (2007b).
5. World Bank (2007b).
6. <http://www.devdir.org/>
7. CGIAR Secretariat (2008b).
8. World Bank (2007b).
9. World Bank (2003).
10. Pardy, et. al. (2008), p. 71
11. Alston, Dehmer, and Pardey (2006), p. 23.
12. Cited in World Bank (2003), p. 3.

Effectiveness, quality, and results management

To achieve poverty reduction and other long-term societal gains, CGIAR research depends on partner institutions that transform CGIAR research outputs into outcomes and impact. This takes time, making it difficult to measure impact from recent research

The Panel was asked to consider the CGIAR and Centers' effectiveness across a broad range of topics to assess whether the CGIAR is making the best possible contribution to the agricultural research needs of developing countries. Specifically, the Panel considered four issues to better understand the effectiveness of the CGIAR and Centers.

- What evidence is there of the impact of the Centers' research?
- What is known about Centers' performance, including the volume and quality of research?
- How well has the CGIAR System defined priorities against which to measure effectiveness?
- What kind of results framework should the new CGIAR System use to guide the partnership and network of Centers, and would it differ from its impact assessments and performance measures?

The Panel's detailed assessment of impact studies is in appendix 2.

CGIAR research has had high overall returns, but impact assessment needs improvement

Previous reviews identified the CGIAR's important contribution to agricultural development through crop genetic improvement research, its principle activity during its first 20 years. Since the early 1990s, as the international agricultural context has changed, the CGIAR's research agenda has diversified. It moved into natural resource management and policy-oriented research directed to achieving the benefits of crop improvement and into animal resources. As research diversified, research funding

stagnated in constant dollars (see chapter 5), while the CGIAR's share of global research and development for agriculture declined to about 1.5 percent. Meanwhile, rapidly growing developing countries such as China, Brazil, and India have made great strides in agricultural research, altering their needs for CGIAR research, while in parts of Africa, national agricultural research has remained underdeveloped. With this changing context for international agricultural research comes the question of whether CGIAR research is having the greatest impact where it is needed most.

To achieve poverty reduction and other long-term societal gains, CGIAR research depends on partner institutions that transform CGIAR research outputs into outcomes and impact. This takes time, making it difficult to measure impact from recent research, such as over the Panel Review period since 2001. Impact and associated outputs and outcomes can be assessed over a longer period, however, and then compared with more recent outputs and outcomes to get a sense of what future impact might be.

Since 2001, the CGIAR has invested heavily in assessing its impact through the Standing Panel on Impact Assessment, within the Science Council. A comprehensive assessment of the global impacts of crop genetic improvement was published in 2003. Assessment of the relatively neglected areas of natural resource management and policy-oriented research followed. Impact studies have been initiated in capacity building and participatory research. Impact assessment in these newer areas of CGIAR research is challenging, requiring new, often more qualitative methodologies than for assessment of the impact of crop genetic improvement.

High overall returns on research investment

Overall, recent global, regional, and local assessments of CGIAR research reveal very high returns on investment. Meta-analysis of impact assessments of global and regional impact suggest that total investments in the CGIAR have paid for themselves by a wide margin, even when just a few well documented successes are considered (box 3.1). Regional impact studies in South Asia and Sub-Saharan Africa point to substantial benefits of crop genetic improvement research in Asia and of

crop genetic improvement and biological control research in Africa. They also illustrate that research impacts in Africa have been limited, with lower returns on investment than in other regions—this despite Sub-Saharan Africa receiving the largest regional share of CGIAR investment (41 percent) since 1971.

Trends in impact assessments in main areas of research vary

Expenditure trends since the early 1990s in the three main research area of crop genetic improvement, natural resource management, and policy-oriented research have differed (table 3.1). Crop genetic improvement (much of which falls under “increasing productivity” in table 3.1) has remained the principal area of investment, falling from 49 percent of the total in 1992 to 37 percent in 2007. Expenditure on natural resource management (“saving biodiversity” and “protecting the environment” in table 3.1) has fluctuated, rising from 19 percent in 1992 to 29 percent in 2001 and falling to 11 percent in 2007. Policy research has grown rapidly since 2001, rising from 14 percent to 17 percent.

Crop genetic improvement research has received the most assessment and has generated evidence of profound positive impacts arising from the broad diffusion of improved varieties and subsequent spillover effects. Yield-enhancing and yield-stabilizing modern varieties produced by the Centers and their national partners have produced benefits of more than \$10 billion annually, due largely to improved wheat, rice, and maize. Recent research on a range of crops and traits (drought resistance and nutritional content) is generating outputs and outcomes assessed as very promising for potential impact.

Recent studies on the impact of natural resource management research, including pest management, show substantial benefits and positive internal rates of return on investment. Some benefits have occurred at a considerable scale and are of international significance; notable examples are the work of the rice-wheat consortium in South Asia, biological control programs in Africa, and the

Box 3.1 Meta-analysis of systemwide impact suggests substantial benefits from investment in CGIAR research

A 2003 meta-analysis of all ex post impact assessments in peer-reviewed journal articles, book chapters, and Center publications that estimated systemwide benefits is the only comprehensive benefit-cost assessment of CGIAR research investments over the System’s lifetime.¹ It found benefits ranging from nearly \$14 billion to more \$120 billion. The benefit-cost ratios suggest that investments in the CGIAR have paid for themselves by a wide margin: even by the most conservative criterion, overall benefits attributable to CGIAR research were roughly double the costs of the research.

The very small number of impact assessments of natural resource management and policy-oriented research, together with the inclusion of all systemwide expenditures in the analysis, means that the overall benefits of CGIAR research were understated.

A very high proportion of benefits were associated with just a few of the CGIAR’s many programs. Roughly half (47 percent) of total benefits were attributed to rice breeding, and almost a third (31 percent) to spring wheat breeding. Biocontrol research that led to reduced crop damage from the cassava mealybug accounted for most of the remaining total benefits (15 percent).

1. Raitzer (2003).

Table 3.1 Center expenditure by research area, 1992–2007

Undertaking	1992	2001	2007 ^a
Increasing productivity	49.3	34.8	37.1
Saving biodiversity	7.7	9.6	9.7
Protecting the environment	11.5	18.9	15.0
Improving policies	9.9	13.8	16.7
Strengthening national agricultural research systems	21.7	22.9	21.4

a. Estimated.

Source: Centers’ medium-term plans, 2008–10; ILRI medium-term plan 2007–09; World Bank (2003); CGIAR Secretariat (2001a).

Alternatives to Slash and Burn Program. But much of the research impact for natural resource management is on a smaller geographic scale than that for crop genetic improvement, often because adoption depends on local collective action, extension services, or assignment of property rights. That means that the spillovers can be very limited, and the overall impacts constrained.

The number of studies on the impact of policy-oriented research have risen considerably in recent years. Seven impact assessments of policy-oriented research were commissioned in 2007 (publication forthcoming). All found substantial returns to investment in high internal rates of return and large benefit-cost ratios. Moreover, the total measured benefits of the projects were large—in the tens or hundreds of millions of dollars in net present value terms.¹ Policy research offers strong potential for generating broad impacts affecting many people in many countries. But it is more difficult to estimate benefit-cost ratios for policy research than for most other types of research. Even where the evidence is clear that policy advice was applied, the

advice is usually only one of many influences. For example, there is convincing evidence that IFPRI's evaluations of Mexico's cash-transfer program, Progresa, and Bangladesh's Food for Education furnished important added value to these programs, but the evaluations were just one of several contributors to the overall impacts (box 3.2).

Demonstration of substantial positive impacts for natural resource management and policy-oriented research is important. A dearth of assessment studies in these areas in the 2003 meta-evaluation fed concern that growing investment in these areas (see table 3.1) might not be optimizing CGIAR research impact. Crop genetic improvement research remains the major area of research activity, and this is appropriate to its significant potential for spillover effects.

Complementary evidence from the Independent Review Panel survey of informed stakeholders and External Program and Management Reviews (EPMRs) supports the findings on impacts. The great majority (82 percent) of those stakeholders surveyed believe that the CGIAR has been effective or highly

Box 3.2

IFPRI and Mexico's Progresa conditional cash transfer program

The poor were particularly hard hit during the severe economic downturn in Mexico during the mid-1990s. To help them survive the economic turmoil, a team of Mexican social scientists in the incoming Zedillo government designed a program of conditional cash transfers for mothers of young children and adolescents to replace the traditional food distribution program. Conditions for receiving the cash assistance included ensuring that children attended school, that infants received nutritional supplements, and that all family members received regular health and nutrition checkups.

Progresa contracted IFPRI to evaluate the program during 1998–2000; subsequent evaluations were taken over by the Mexican Institute of Nutrition and Public Health. From inception, the program had incorporated state-of-the-art analysis of data collected from tens of thousands of participating households. These evaluations guided continuing refinements and improvements to the program and revealed very large benefits from improved nutritional and schooling outcomes for program participants compared with nonparticipants. They also raised the international profile of Progresa. Progresa (now called Oportunidades) has achieved international renown in

large part because of how it integrated evaluation into the program.

Quantitative assessment of IFPRI's contribution to the program's success relied on a combination of interviews with key informants, written reviews of the program, and articles in the popular press. These revealed four categories of impacts: reduced delays in implementation, improvements in evaluation techniques and accompanying improvements in Mexican program managers, enhanced likelihood of program continuation beyond current political regime, and spillovers to programs in other countries seeking to emulate Progresa.

Using conservative assumptions of the benefits attributable to Progresa's primary outputs (improved schooling and child nutritional outcomes) and of the contribution of IFPRI's involvement, quantitative estimates suggest that benefits greatly exceed costs for all four categories of impact. Thus, even under the very conservative assumptions made about IFPRI's role in the program, the benefits attributable to IFPRI were still quite large relative to the costs of its participation.

Source: Behrman (2007).

The most striking observations emerging from a review of EPMRs is the clear conflict in some Centers between generating international public goods outputs and working with partners to turn outputs into outcomes and impacts

effective in conserving and improving plant and animal genetic resources (box 3.3). Only about half of respondents thought that natural resource management research was effective or highly effective, and only about a third thought that policy-oriented research was.

Impacts from poverty reduction, capacity building, and international public goods have been more difficult to assess

Poverty alleviation is a core mission of the CGIAR, and a large share of research from its inception has been oriented toward improving the welfare of the poor. Attributing poverty reduction to specific CGIAR research activities is difficult, however, because of the large number of social, economic, and political influences not under the CGIAR's control. Still, some estimates show profound but declining pro-poor impacts, such as those of improved rice varieties in China and India, mainly through lower food prices.

The CGIAR invests about 20 percent of its resources in capacity building to support technology delivery, particularly through strengthening national agricultural research systems (NARS). Yet, there are very few impact evaluations of this activity, and they have

confronted methodological challenges. Several qualitative analyses tell convincing stories of human capital formation and institutional effectiveness, but fall well short of providing rigorous empirical evaluation.

A review of Centers' EPMRs supports evidence of substantial impacts by individual centers. It also reveals a clear conflict in some Centers between generating international public goods and working on the applied research and capacity building of partners in turning outputs into outcomes and impacts.

Impacts reported in EPMRs are more apparent for crop genetic improvement research than for natural resource management research, likely because of the more complex impact pathways for such research and less developed methods for measuring impact. In general, impact assessment is regarded as deficient across Centers, in quantity and quality, with some exceptions. Ex ante impact assessment is receiving more attention from Centers. Still, only 3 of the 15 recent EPMRs recognized evidence of the Science Council's recent efforts to foster an "impact assessment culture" in the Centers.

It was clear from EPMRs that many Centers are under pressure from donors and NARS to undertake more applied research and capacity building aimed at more local and immediate outcomes and impact. Some Centers are committed to maintaining a balance between strategic research and activities that support the delivery of outcomes and impact. This is evident in responses to EPMRs, particularly in concern expressed about international peer-reviewed publications as a measure of Center research performance. One Center commented in responding to its most recent EPMP: "the requirements of journal publications are often inimical to practical adoption analysis as part of an on-going programme of research."

The most striking observations emerging from a review of EPMRs is the clear conflict in some Centers between generating international public goods outputs and working with partners to turn outputs into outcomes and impacts. With a few exceptions, the recent trend in EPMRs has been to emphasize

Box 3.3 Stakeholder views on effectiveness of CGIAR research

The Independent Review Panel survey of informed stakeholders, including Members and Centers, reveals that the great majority (82 percent) believe that the CGIAR has been effective or highly effective in conserving and improving plant and animal genetic resources, about half believe that for natural resource management research, and about a third for policy-oriented research.

More than 80 percent of respondents rated the CGIAR and Centers as working effectively or very effectively in "sustaining biodiversity" (81.6 percent) and "genetic improvements" (81.9 percent). "Sustainable management of resources" was lower (51 percent), followed by "improving policies/facilitating institutional innovation" (32 percent) and "agricultural diversification" (23 percent).

The respondents most likely to be directly concerned with meeting these research priorities are those responsible for managing the Centers (board chairs, Directors, and Deputy Directors General), Science Council members, and those involved in the Challenge Programs.

Respondents identified several factors constraining effectiveness, including lack of funding, particularly for crop improvement research; lack of time; and the complexity of impact pathways, particularly for natural resource management and policy-related research.

international public goods outputs, buttressed by the strong emphasis by the Science Council and System Priorities since 2004 on more strategic research and international public goods. Since Centers generally accept all or most recommendations of EPMRs, Centers are likely to adjust their programs accordingly. Thus if Center activities to support the delivery of outcomes and impacts are as effective as evaluations have found them to be, and if partners are not able to substitute for these Center inputs, a decline in the future impact of Center research is to be expected.

Conclusion

Overall, it is reasonable to conclude that the CGIAR continues to undertake research with a high potential for impact. It is also reasonable to conclude from the diversity of CGIAR research activities and its range of collaborations that the CGIAR has some of the core attributes of a 21st century organization. It is multidisciplinary, functioning along an extended spectrum from the physical sciences through the social sciences to the policy sciences. And its networks of actors stretches from other global entities to the small rural farm.

The Panel finds considerable evidence that CGIAR research has generated positive impacts and considerable benefits relative to costs. Recent research appears capable of producing similar future impacts, although the dearth of outcomes reported in recent EPMRs recommends that this be carefully monitored. Research impact has been achieved across the range of CGIAR research, including crop genetic improvement, natural resource management, and policy-oriented research, with crop genetic improvement having the greatest international impact because of spillover effects.

The Panel suggests that assessment focus in four areas, where better understanding and monitoring of CGIAR research and its contributions are needed:

- Impact assessment in Sub-Saharan Africa, where the share of CGIAR expenditure is high and rising and where impact has been comparatively

limited, to ensure that valuable research is being generated and that impact pathways and partners are being supported through capacity building. (For instance, there is concern that the adoption of New Rice for Africa [NERICA] rice and other new varieties is slower than expected.)

- Impact assessment of natural resource management research that includes environmental benefits, to demonstrate CGIAR's progress in meeting its goal of promoting environmental sustainability. Assessments have focused on productivity benefits and have largely ignored environmental benefits—presumably because of the methodological difficulties in quantifying them.
- Impact assessment that considers higher level impacts related to system-level goals. There has been a tendency to compartmentalize and contrast impact assessment of research in different areas, rather than consider how these areas collectively contribute to strategic goals. Natural resource management and policy research are essential to crop genetic improvement research, a point made eloquently in the 2003 meta-evaluation.² Inter-Center cooperation is an important means of achieving integration across research areas.
- Assessment of whether the contributions of women to agriculture and their special knowledge and needs are addressed at a level commensurate with their importance. The Panel's analysis indicates that the CGIAR System appreciates the importance of gender to its research mandate, but the cross-cutting gender dimension is missing in the CGIAR Center focus, in EPMRs, and in impact assessment. The evidence is clear that unless gender equality and the barriers women face are squarely addressed, it will not be possible to achieve the efficiency

The Performance Measurement System is not comprehensive. It is mainly a self-assessment system, but with elements of independent verification and performance scoring

and productivity gains that are critical for poverty reduction and food security.

The collective effort of the CGIAR, as a System, has not been evaluated. This will need to be done as the CGIAR develops a compelling results strategy involving clear and achievable development impacts focused more on strategic objectives and program outcomes than on individual Centers and their projects.

Performance measurement has received much more attention since the last CGIAR System Review

Impact assessments are episodic, but managers need regular reporting to ensure alignment with and progress toward desired outcomes. In 2003, the CGIAR established a Working Group on Performance Measurement Systems. It examined performance measurement systems (PMS) in other organizations and compiled a *Sourcebook*. The recommended approach was the basis for the PMS that was piloted in 2005 and has since been used annually.³

The PMS is not comprehensive. It covers the Centers, but not the joint administrative and program units, the Science Council, or the Members. It is mainly a self-assessment system, but with elements of independent verification and performance scoring (by the Science Council, Standing Panel on Impact Assessment and Standing Panel on Monitoring and Evaluation, and external panels).⁴

The CGIAR also conducted a stakeholder perceptions survey in 2006, which it intends to commission every three years.⁵ It was a purposive sample (partners' names were supplied by the Centers), and the response rate was low (36 percent on average). The Centers' research received high marks from the stakeholders. Most rated performance about the same or improved over the previous five years, but they felt that CGIAR research should be directed more to the development needs of national institutions.

The PMS collects some information annually and stakeholder perception information triennially (table 3.2). Intermediate outcomes are also reported.

Uses of Performance Measurement System information

In 2008, the World Bank allocated about a quarter of its Development Grant Facility funds to Centers based on their performance scores. Since 2005, Germany has also used some PMS information to allocate 25 percent of its funds for the Centers. Germany intends to increase the weight for performance from 30 percent to 50 percent.

The main use of the CGIAR's PMS, other than to guide donors' resource allocations, is to guide decisions by the Centers' boards and management. Some influence is easy to see. When the "governance checklist" lists a particular type of policy, boards have been quick to adopt an appropriate policy when one has been lacking. For example, one indicator of institutional health is whether the Center has conducted a survey of staff satisfaction within the previous two years. Between the introduction of this indicator in 2005 and reporting in 2006, the number of Centers complying jumped from 6 to 12. It is plausible that Centers that receive low performance scores on a particular criterion have an incentive to improve. Tracing those influences was beyond the Panel's mandate, however.

The Performance Measurement System is strongest on monitoring the number and quantity of research outputs (publications)

CGIAR produced more publications in 2007 than in 2006 and improved its publication productivity per scientist. Peer-reviewed publications rose from 2,249 in 2006 to 2,493 in 2007; and publication productivity per scientist rose from 2.01 to 2.31 (figure 3.1). The range of publication productivity across Centers narrowed from 0.82–3.37 in 2005 to 1.35–3.5 in 2007.

Publication productivity in 2007 was roughly comparable to that of the World Bank's Development Economics research

Table 3.2 Performance criteria for the Performance Measurement System

Area	Criterion
Results	
<i>Outputs, outcomes, and impacts</i>	
1	Percent of medium-term plan output targets achieved
2	Science Council score on each Center's five most significant outcomes during that year (scale 1–10)
3A	Science Council/Standing Panel on Impact Assessment rating of each Center's commitment to documenting impacts and creating an impact assessment culture
3B	Science Council/Standing Panel on Impact Assessment rating of the rigor of two Center impact studies carried out in those three years (collected once every three years)
<i>Quality and relevance of research</i>	
4A	Number of externally peer-reviewed publications per scientist in that year (excluding Thompson/ISI journals)
4B	Number of peer-reviewed publications per scientist in that year in Thompson/ISI journals
4C	Percentage of scientific papers that are published with developing country partners in refereed journals, conference and workshop proceeding
4D	Relative rating of each Center's 10 best publications as judged by the Thompson/ISI journal impact factor (indicator is being piloted)
Institutional health	
<i>Governance</i>	
5A	Score on governance checklist
5B	Peer review panel rating of the relevance/merit and anticipated impact of two Board actions in that year that were, in the opinion of the Board, the most important in improving oversight
<i>Culture of learning and change</i>	
5C	Score on culture of learning and change checklist
<i>Diversity</i>	
5D	Does the Center have Board-approved gender and diversity goals? (yes/no)
5E	Percent of women in management (research and nonresearch) at December 31
5F	Percent of internationally recruited staff from the top two IRS list countries
5G	Percent of scientists/researchers with PhDs conferred in past five years
Financial health	
6A	Short-term solvency (liquidity)
6B	Long-term financial stability (adequacy of reserves)
6C	Efficiency of operations (indirect costs ratio)
6D	Cash management on restricted operations
6E	External audit opinion qualified/unqualified
Stakeholder perceptions (every three years)	

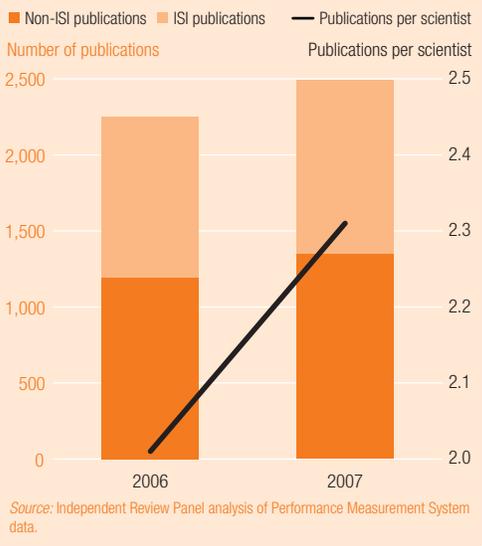
department, which achieved an average of 2.4 peer-reviewed publications per research staff annually in recent years.

Ecoregional Centers had the highest publication rate per scientist, commodity Centers the lowest. However, commodity Centers have the highest Institute for Statistical Information (ISI) publication rate per scientist. Centers in other categories produce more non-ISI than ISI publications (for Center classification by category, see table 2.1 in chapter 2).

A new indicator piloted in 2006 weights a Center's publications by the expected impact of a sample of journals in which it publishes, with journals assessed relative to the top three journals in their subject category. CIAT and CIP achieved the highest journal impact scores; ICARDA and Africa Rice Centre had the lowest.

In 2007, IWMI produced most publications per dollar funding, with one publication per \$120,000 budget. Bioversity is the least

Figure 3.1 CGIAR publications and publications per scientist rose from 2006 to 2007



efficient by this measure, with one publication per \$360,000 (figure 3.2).

The CGIAR issues guidelines each year on reporting performance indicators, specifying the information to be provided.⁶ Each Center is asked to report “the five most significant intermediate outcomes documented” in the previous year resulting from outputs that it produced, with an explicit link to the Center’s medium-term plan. The Science Council

assesses each intermediate outcome on a 10-point scale. (Outcomes are defined as “the external use, adoption, or influence of a Center output(s) [e.g., by partners, stakeholders, clients]).”

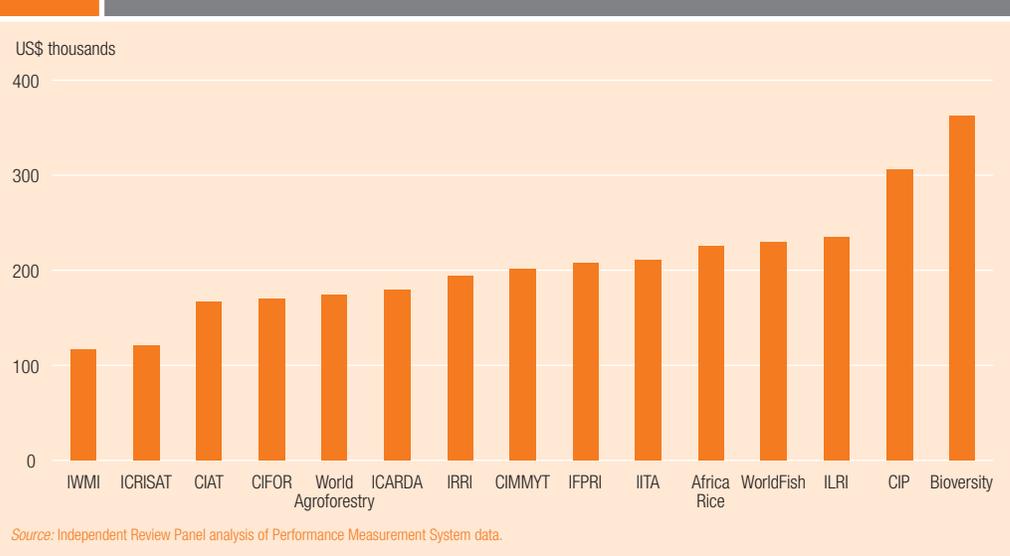
The quality of the submissions varies. The most common form is a narrative of “accomplishments” within a project or area. Some outcome statements describe the output and beneficiaries. Most outcomes are the result of many years of work, which limits the usefulness of annual comparisons. The best evidence tends to be provided when there has been a recent evaluation (box 3.4).

Measures of influences on performance for 2005–07 yield uneven results

The Panel examined three performance variables: the Science Council’s score on each Center’s five most important intermediate outcomes, publications per scientist, and budget per publication. It also looked at whether large Centers have a better performance record than small Centers.⁷

Science Council scores on five most important intermediate outcomes. The recorded average score for intermediate outcomes has declined in the past three years, from 8.08 (with a range of 4.7–10.0) in 2005 to 7.6 (2.0–10.0) in 2006

Figure 3.2 CGIAR Centers 2007 budget per publication



Of the 75 intermediate outcomes submitted in 2007, 10 (13 percent) received a score of 9 or better out of a maximum of 10 points:

- Spatial Data and Knowledge Gateways project provides water-related maps, models, and statistic for analyzing water use (as a global public good). The data are widely used around the world, and the project has won recognition. *IWMI*, score = 10
- Laboratory information management systems software for use in applied genomics was made available on the web in 2006 and has been used by partners. *ICRISAT*, 9.8
- Research organizations and universities in Africa and Asia are applying new knowledge and skills from the ILRI–Swedish University of Agricultural Sciences training program through the animal genetics training resource to redesign their training courses, influence their national livestock policies, and develop breeding programs for livestock improvement. *ILRI*, 9.8
- Small but specifically diverse subsets of the world germplasm collection of ICRISAT-mandate crops, of a size to be functionally manageable by breeders, particularly NARS, enhanced the efficiency of breeding programs globally. *ICRISAT*, 9.4
- A 2006 study comparing the impact of two World Vision Programs in Haiti found that one approach (preventing children from becoming undernourished) was more effective than another. As a result of the study, the more effective approach was adopted in US Agency for International Development– and World Vision–supported programs. *IFPRI*, 9.4
- IFPRI’s research on pro-poor public investment has been widely cited and was used in *World Development Report 2008* to argue for a reversal of the trend of declining government budget allocations for agriculture. *IFPRI*, 9.4
- NARS in Bangladesh released a locally adapted salt-tolerant variety (BRRI dhan 47), the first available for farmers in southern Bangladesh. Farmer intermediaries have started to disseminate BRRI dhan 47, but dissemination is constrained because of seed supply shortages. *IRRI*, 9.4
- Advanced research institutes in Australia and the United States started to use pre-screened rice mutants (an IRRI output) as a core resource to address the high susceptibility of wheat to mutating rust pathogens. *IRRI*, 9.4
- New ILRI research methodologies for identifying genes for disease tolerance in cattle are being used to identify genetic traits affecting human health. *ILRI*, 9.2
- A series of publications gave World Agroforestry a voice in the international deliberations on the potential and constraints of agroforestry for mitigating and adapting to climate change and raised awareness of the crucial importance of trees in farming landscapes for adaptation and mitigation. *World Agroforestry*, 9.2

and 6.22 (3.1–8.4) in 2007. That the intermediate outcomes achieved by the Centers have actually declined is not plausible. More likely, there are at least two other factors at play. First, the Centers’ intermediate outcomes are achieved as the result of many years of work. To consider them as though they were achieved separately each year is to misconceive the issue. In the first year of the PMS, the Centers had a backlog of intermediate outcomes to draw on, and they likely selected the best, so that some decline in scores in subsequent years would be unavoidable. Second, the scoring method changed from year to year—from two questions per intermediate outcome, to three questions, to a single-scale rating.

In 2007, 73 percent (55 out of 75) of intermediate outcomes were rated higher than 5 out of 10 by the Science Council.⁸ But a significant number of the remaining were rated quite low, which should be cause for reflection.

Commodity Centers achieved the highest intermediate outcome ratings for both 2005–07 and 2007 alone. Their average intermediate outcome rating for the three years was 7.9, followed by the ecoregional Centers at 7.2 and the natural resource management Centers at 7.1, and then the policy Centers at 6.8. The relatively low score for the policy Centers is due mainly to Bioversity’s low intermediate outcome ratings in 2005 and 2007. But there is considerable unexplained variation. For example, the natural resource management Centers seem to have had an outlier year in 2005, with an average intermediate outcome rating of 9.0, compared with 6.3 in 2006 and 6.1 in 2007 (figure 3.3). Policy Centers had an outlier year in 2006, with an average rating of 9.0, compared with 6.0 in 2005 and 5.2 in 2007.

The best performer in 2007 was IRRI (intermediate outcome rating of 8.4), followed

Figure 3.3 Average intermediate outcome ratings of CGIAR Centers, by Center categories, 2005–07

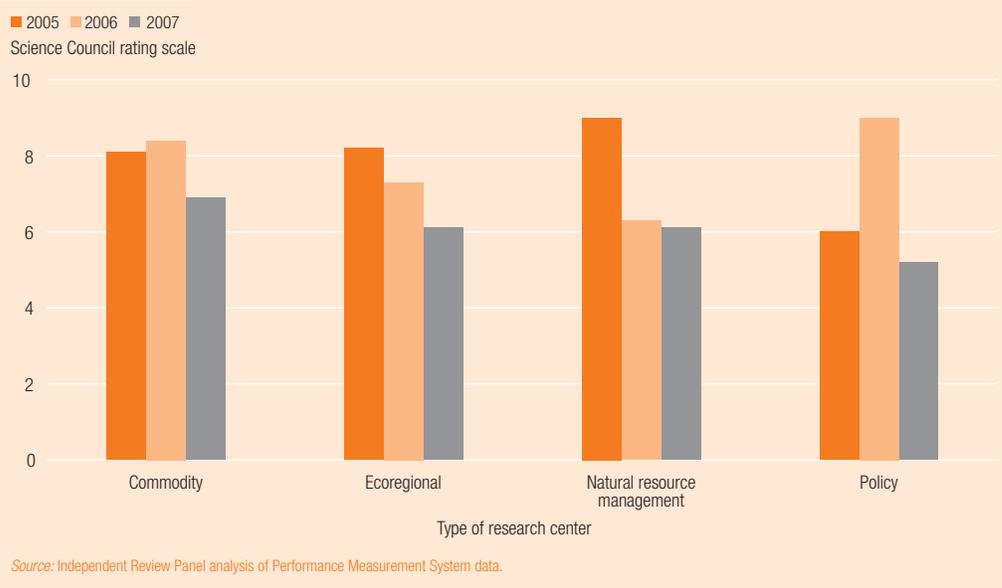


Figure 3.4 Average intermediate outcome ratings of CGIAR Centers, by Center, 2005–07



by IWMI (8.0), and CIP and ICRISAT (7.8). Some Centers received much lower scores (figure 3.4). The range is so wide (from 5.4 to 8.9) that further study is needed to determine whether it reflects true differences in effectiveness or is the result of as yet unanalyzed factors.

The Panel found the PMS to be a rich source of data, though still evolving, about the intermediate outcomes of the Centers’ work. The Panel was able, in the time available for the Review, to examine only a small part of the data on

intermediate outcomes and publications. The data are worth further careful analysis.

There is no relation between the size of a Center measured by its budget and its intermediate outcome ratings. A simple linear regression with 2005–07 average intermediate outcome ratings and budget size yields a trivial coefficient of 0.02 with no significance.

Publications per scientist and budget per publication and intermediate outcome ratings. The

relationship between intermediate outcome ratings and publications per scientist over the period 2005–07 is interesting. A simple linear regression delivers a high positive coefficient of 0.55, but it is not statistically significant. Commodity Centers achieve the highest intermediate outcome ratings and have the highest number of Thompson/ISI publications per scientists, but have the lowest number of total publications per scientist.

In 2007, publications per scientist is significantly positively related to intermediate outcome ratings. Centers that publish a lot also produce highly rated intermediate outcomes. The regression analysis also indicates that the quality of productivity matters, since publications in more prestigious journals have a larger positive relationship with intermediate outcome ratings than publications in less prestigious journals. To simplify somewhat, good science does produce good development outcomes.

In 2007, there is a significant negative relationship between a Center's intermediate outcome ratings and its "efficiency," measured in overall budget per publication. The more a Center spends per publication the higher its top five intermediate outcomes tend to be ranked. This relationship is not particularly strong, however, and overall budget per publication is a crude measure of efficiency.

Performance Measurement System objectives and achievements

The PMS has several objectives.⁹ They are listed below, each followed by a summary assessment by the Panel of the degree of achievement of the objective.

1. *To be a learning tool for each Center to manage its own performance and to be able to compare its performance with other Centers using benchmarks.*

The PMS is not well positioned as a learning tool for the Centers because it is difficult for the one instrument to play three divergent roles—accountability, resource allocation, and learning. It is managed by the CGIAR Secretariat and the Science Council to monitor the Centers.

It should be transferred to the new Consortium proposed by the Panel (see chapter 8), enabling it to be a tool for self-management by the Centers.

2. *To facilitate transparent reporting and accountability to CGIAR stakeholders.*

The PMS is primarily a reporting and accountability tool and, within its limited scope, it does this task well. Its "results orientation" can be improved, but it is a good start.

3. *To complement other evaluation instruments (mainly EPMRs and Center-commissioned external reviews).*

The timing of the PMS (annual) complements the EPMRs (every five years). The PMS data, particularly outcome ratings and governance ratings, should gradually become an increasingly important source of information for the teams conducting EPMRs. Progress and prospects seem good.

4. *To provide standard performance data that can be aggregated up to the System level.*

The PMS data can be aggregated to the System level. However, simple aggregations are not very instructive because the 15 Centers are so heterogeneous. More finely grained analysis of the performance data and the factors that appear to influence performance is needed. Also, the Centers are not the whole System. The PMS should be expanded to cover the other System components.

5. *To be an input to funding and other decisions by CGIAR Members.*

The PMS data are used by the World Bank and by Germany to allocate some of their funds among the Centers. This provides an incentive for the Centers to take the PMS seriously. The World Bank has assigned weights to each of the PMS criteria. These are not consensus weights. The Centers and other donors should be

Centers that publish a lot also produce highly rated intermediate outcomes. To simplify somewhat, good science does produce good development outcomes

Performance is highly variable across Centers and over time for each Center: ecoregional Centers have had the highest publication rate per scientist, and commodity Centers achieved the highest intermediate outcome ratings

consulted to see whether it is possible to develop consensus weights. These will be necessary if a major new pooled Fund is established and its funds are allocated partly by performance (see chapter 8).

6. *To be an early warning system for problems and weaknesses.*

The PMS needs to be linked systematically with a “red flag” system to make Centers at risk more visible. Financial data need to be collected and analyzed more frequently than annually—probably quarterly.

Summary findings on performance

It is too soon to analyze trends in the performance data from the PMS in part because three years is not long enough and in part because the definitions of variables changed significantly from year to year as lessons were drawn and the system was improved.

Performance is highly variable across Centers and over time for each Center. How important these variations are needs to be analyzed once more data are accumulated. So far it seems that ecoregional Centers have had the highest publication rate per scientist and commodity Centers the lowest. However, commodity Centers have the highest Thomson/ISI publication rate per scientist. Commodity Centers achieved the highest intermediate outcome ratings, and policy Centers the lowest. While the best science seems to be associated with the best development outcomes, the limited data should not be overinterpreted. Weighting publications per scientist by journal impact (one year of data only) does not seem to change the ranking of Centers much, but this deserves further investigation.

Within the limitations of the data, there are indications of strong performance by many Centers. CGIAR overall produced more publications in 2007 than in 2006 and improved its productivity per scientist. CGIAR’s average 2.31 peer-reviewed publications per scientist per year have not been benchmarked against comparable institutions (but compare well to the 2.4 average of the World Bank’s

Development Economics research department¹⁰). The average intermediate outcome ratings of the Centers declined substantially between 2005 and 2007, but the decline seems to be an artifact of changes in the measurement system and the nature of the variable rather than a real change in performance.

The greatest weakness in the data relates to the measurement and reporting of results:

- At the output level, publications are extremely important to global public goods because the sharing of knowledge is basic to the production of the public good. However, more work is needed to conceptualize other significant outputs. The PMS should give Centers strong incentives to make their research available and useful for development, in line with the global public good mission of the CGIAR.
- At the intermediate outcome level, not only numbers of publications but also use of those publications should be monitored (citations, website hits, downloads, and the like).
- At the outcome level, listing the five best outcomes per year is a flawed measure of Center performance in a particular year. It is too selective. There must be a better resting point somewhere between listing five best outcomes and listing all outcomes for the year, an unwieldy burden. Matching the number of outcomes to Center size is too mechanical and superficial. The Panel suggests that each Center present its outcomes within a results-based framework each year.
- Actual impacts, not just “impact culture,” need to be assessed. More work is needed on a systemwide results framework and nested Center-specific results frameworks within which to assess intermediate and final outcomes. It has been proposed that an actual measure of impact be developed for presentation at the 2008 Annual General Meeting. The Panel applauds the intention while

not underestimating the difficulty of measuring impact. However, impact is best addressed by an independent evaluation unit, not annually but as part of the three-year strategy and funding cycle (see chapter 8).

Despite its limitations the PMS data are being used to allocate part of World Bank funding to the Centers. This use may become even more important if a similar system is used to allocate funds from the pooled CGIAR Fund advocated by the Panel (see chapter 8). The Panel believes that the World Bank should assign greater weight to the results indicators than to the other indicators of performance in the PMS in its allocation system.

Performance measurement and management should be the responsibility mainly of managers, not donors. Therefore, a PMS based on a results framework aligned with the strategic objectives should be the responsibility of the Consortium in the new governance structure suggested by the Panel (see chapter 8). Centers should take more collective responsibility for monitoring performance and using performance information for management purposes.

Some performance indicators need more work to avoid creating perverse incentives. For example, the Centers lose points if their “long-term financial stability (adequacy of reserves)” is above a certain modest level. This produces a disincentive for Centers to build an endowment that would help stabilize their finances (see chapter 5).

Performance accountability should be mutual—not one-way accountability from the Centers to the donors. Therefore, the PMS Annual Report should recount the performance of all components of the CGIAR System, individually and as a whole.

The use of PMS data should be more analytical. What influences or hinders good outcomes? The first step toward better use of the PMS data is to produce a single integrated database with standard record layout for each Center and for each year that includes descriptive data about the Centers (explainers or independent variables) as well as performance data.

The design of the CGIAR stakeholder perceptions survey should be rethought before the 2009 survey. Target stakeholders should be defined better and sampled more rigorously, and other procedures should be put in place to obtain a high response rate.

In the past five years, the CGIAR and the Centers have made considerable progress in annual performance measurement. The principles stated by the Science Council in 2002 have been followed with some success. The stakeholder perceptions survey was less successful because of difficulties of a purposive sample and a low response rate. The PMS may be even more important in the future if there is a substantial pooled Fund that allocates funds to Centers and programs partly according to performance.

System Priorities fall short of objectives

A Standing Panel on Priorities and Strategies was set up in early 2003 under the interim Science Council. Its mandate was to develop new System Priorities to:

- Focus CGIAR research more closely on its poverty reduction mission.
- Reduce the dispersion of research projects in the CGIAR and the drift toward development projects by refocusing on strategic research and delivery of international public goods.
- Mobilize research across the Centers through inter-Center collaboration.
- Improve partnerships and attract new research partners.
- Improve accountability and help donors allocate resources.

The priority-setting exercise produced five System Priorities each with four subpriorities. These were released with detailed descriptions of each priority, their development, relevance to Millennium Development Goals, and plans for implementation.

The System Priorities broadly match current CGIAR research activities with some minor adjustments (table 3.3). One major addition is new research on high-value products

Performance
accountability should
be mutual—the PMS
Annual Report should
recount the performance
of all components of
the CGIAR System,
individually and as a whole

and associated research on increasing market access and income for poor farmers (mostly priority 3). A few areas of earlier research such as post-harvest research have been excluded.

The major change in research activity driven by the System Priorities was in the nature of the research rather than in research areas. The Science Council proposed that 80 percent of each Center's research be strategic, on priority themes, and directed at delivering international public goods. Of the remaining 20 percent, the Science Council recommended that at least half be strategic research aimed at developing future research areas. Squeezed into this 20 percent must also be all nonstrategic research activities, including

applied research to support impact pathways, capacity building (although research on capacity building may be included in the 80 percent strategic research), and other Center activities that help research outputs achieve impact. The Science Council assumed that development partners will pick up outputs and undertake necessary subsequent research. It acknowledged that this will be easier for "strong NARS" than "weak NARS," implying that research in support of weak NARS should be limited to activities where there are partners to ensure uptake and impact.

The Science Council developed a three-part three-year plan for implementing these System Priorities over 2006–08.¹¹ First, Centers

Table 3.3 CGIAR System priorities, 2005

Priority area	Description
Area 1	Sustaining biodiversity for current and future generations
1A	Conserving and characterizing staple crops
1B	Promoting conservation and characterizing underutilized plant genetic resources to increase the income of the poor
1C	Conserving indigenous livestock
1D	Conserving aquatic animal genetic resources
Area 2	Producing more and better food at lower cost through genetic improvements
2A	Maintaining and enhancing yields and yield potential of food staples
2B	Increasing tolerance to selected abiotic stresses
2C	Enhancing nutritional quality and safety
2D	Enhancing the genetic quality of selected species to increase income generation by the poor
Area 3	Reducing rural poverty through agricultural diversification and emerging opportunities for high-value commodities and products
3A	Increasing income from fruits and vegetables
3B	Increasing income from livestock
3C	Enhancing income through increased productivity of fisheries and aquaculture
3D	Promoting sustainable income generation from forests and trees
Area 4	Alleviating poverty and managing water, land, and forest resources sustainably
4A	Promoting integrated land, water, and forest management at landscape level
4B	Sustaining and managing aquatic ecosystems for food and livelihoods
4C	Improving water productivity
4D	Promoting sustainable agro-ecological intensification in low- and high-potential areas
Area 5	Improving policies and facilitating institutional innovation to support sustainable reduction of poverty and hunger
5A	Improving science and technology policies and institutions
5B	Making international and domestic markets work for the poor
5C	Strengthening rural institutions and their governance
5D	Improving research and development options to reduce rural poverty and vulnerability.

Source: Science Council, Standing Panel on Priorities and Strategies, 2005.

would specify in their 2007–09 medium-term plans how they would assign research activities and budgets to particular System Priorities or to other categories of “development, new research, and stand-alone training” (the other 20 percent of research). Second, Centers would develop framework plans for each Systems Priority—strategic documents defining the long-term goal of CGIAR research in that area, along with its scope and plans for system-wide implementation. Third, a parallel process would be established to design a mechanism for funding the System Priorities.

The Centers and Science Council have struggled to find a common vision for implementing the System Priorities. The recent decision to discontinue work on the framework plans, and the mandate of the change design process to develop a small set of outcome-oriented strategic objectives for the System, would suggest that the CGIAR has decided that the System Priorities have not been effective.

The System Priorities failed as a spur to donor funding

Some envisioned the System Priorities as a way to elicit funds from donors. The Executive Council established a task force and then an Ad Hoc Committee on Funding System Priorities to develop principles and models for funding the CGIAR through System Priorities.¹² It developed a model based on a matrix with Centers or Challenge Programs on one axis and System Priorities on the other. Across this matrix, Centers would distribute their “demand” in terms of planned research investments under different System Priorities, and donors would distribute their “supply” in terms of planned funding to Centers and System Priorities.

However, the changes in donor and Center behavior needed to make this system work seem unlikely. The mechanism bears a superficial likeness to the way unrestricted funds had been allocated by the Technical Advisory Committee before System reform, based on System priorities established by the Technical Advisory Committee. What is different here, however, is that this mechanism would

involve all participating donors in deciding about allocation (based on priorities on which they have all agreed) and all Centers in agreeing to a common funding approach.

What can be done with the System Priorities?

The System Priorities exercise suffered from a lack of a common vision between the Science Council and the Centers. Centers resisted major restructuring of their research programs around System Priorities, for a variety of reasons. An important lesson from this exercise is that the Centers must have a major role in developing the strategy that they will implement, to ensure both ownership and feasibility.

Even accepting that the System Priorities have not delivered a research strategy for the CGIAR, they have nonetheless been an instructive exercise. Using the System Priorities framework as a resource allocation mechanism has identified important and challenging preconditions for success. The initial framework planning exercise has demonstrated that moving to a more programmatic, cross-Center research approach may incur substantial transaction costs and challenge Center research strategies. The exercise has shown how research in different Centers might fit together in a systemwide research framework and how special inter-Center initiatives, such as Challenge Programs and Systemwide and Ecoregional Programs can strengthen that. It stimulated consideration of how boundaries might be put around CGIAR research. And it highlighted important issues for any future Consortium of Centers, such as how genetic improvement, natural resource management, and policy research should be managed together across Centers.

Managing for results is key to revitalizing the CGIAR-Centers partnership

The CGIAR and the Centers are operating in a fast-changing context of international development cooperation. Managing for results has

Even accepting that the System Priorities have not delivered a research strategy for the CGIAR, they have nonetheless been an instructive exercise. Using the System Priorities framework as a resource allocation mechanism has identified important and challenging preconditions for success

become an essential tool for demonstrating learning and value in this context (box 3.5). The CGIAR and Centers have not yet fully mastered this imperative.

The current international impetus for change began with adoption of the Millennium Development Goals in 2000, continued through the Monterrey Financing for Development Conference of 2002 and several international roundtables on managing for results, and culminated in the Paris Declaration at the High-Level Forum on Aid Effectiveness in March 2005.¹³ Through all this, the international community has developed a shared understanding of the power of focusing on results rather than on inputs and processes.

CGIAR Members and donors are committed by the Paris Declaration to mutual accountability, managing for results, harmonization, alignment, and coordination among themselves to provide support to the Centers. In turn, the Centers need to adopt good governance practices and to deliver results-based and transparent management.

What needs to change for the CGIAR to be more effective?

A recurring theme in the Panel's and in the EPMP analysis of the Centers and the Challenge Programs is the lack of an agreed strategic framework. At the System level, Centers and funders have no compass to guide difficult decisions and to align behavior with priorities in a way that can be easily communicated and internalized by staff. The CGIAR's

Box 3.5

What is managing for results?

Managing for results is a coherent framework for strategic planning, management, and communications based on continuous learning and accountability. It applies several principles:

- Results-oriented strategy sets strategic directions and outcomes.
- Management decisions and resource allocations align with strategic outcomes.
- Program performance indicators target clients and their beneficiaries and the differences to be made in beneficiaries' lives.
- Indicators are used as signals to motivate staff and to provide a base for understanding how service can be improved.

current System Priorities are too numerous, and they lack alignment with any overarching strategy or core strategic objectives or metrics of achievement. Table 3.4 notes some of the differences between CGIAR practice and a managing for results framework.

How the CGIAR System produces and delivers international public goods needs to be considered within a results framework. There has long been tension in the CGIAR between producing international public goods (through science) and delivering development impact. International public goods and measuring for results approaches recognize that no institution or sector can achieve development outcomes alone, especially at a global,

Table 3.4 Differences between the CGIAR and managing for results

What managing for results involves	What CGIAR does
Results-oriented strategy sets strategic directions and defines desired outcomes of Centers and programs relative to the mission and strategic objective indicators	Competency-oriented strategy, not prioritizing research for results
Management decisions and resources aligned with strategic objectives	There is no management system: independent Centers are not working together or effectively with CGIAR and its coordinating bodies
Program performance targets clients/partners and client/partner's beneficiaries quality of life improvements	Program performance targets outputs and is unclear about international public goods "core" and "complementary" roles
Indicators used to direct resources to most effective results, motivate staff, and improve service	Mistrust between System and Centers relates to indicators and evaluation and leads to poor cooperation.

Source: Independent Review Panel.

regional, or network level. The world is made up of increasingly complex systems and interdependent institutions. Agricultural productivity depends on trade regimes, environmental conventions and laws, transportation infrastructure, rural finance, and education policies. Science depends on uptake by a wide variety of partners. Science is also becoming more demand driven and answerable to a broader range of constituencies.

To achieve development impact from the provision of international public goods requires a delivery system with core and complementary components. Activities in the core components (those that define the mission, goals, and objectives and that transform inputs into outputs, making them available to other partners and users) are under the direct control of the Centers, which can be held directly accountable for how they are performed and made available to partners. The complementary activities (those carried out by partner organizations such as NARS, government agencies, civil society organizations, private firms, farmer associations, international organizations) transform CGIAR system outputs into intermediate and final outcomes, which should ultimately have a development impact on the ground. The complementary activities are not under the direct control of the Centers, but they are under their influence; the Centers can play the roles of catalyst, facilitator, convener, and promoter, among others, to enable their uptake. CGIAR Centers can be held responsible for understanding and helping to improve the way other entities in the international public goods delivery system value, adopt, and use the outputs of Center work.

The Panel suggests that the CGIAR System and the Centers are accountable for producing outputs: high-quality science products that are launched within an agreed timeframe and financial allocations and that are relevant to the agreed mission of the CGIAR. The Centers could continue to measure the quality of their research output through reports or publications against agreed benchmarks. The Centers would use measures to ensure their funders that the collections of genetically

diverse seeds and other plant materials are safeguarded within the public domain. Center management would use measurement indicators to manage investment across the production line to demonstrate that project schedules from discovery to product to product adoption have been adhered to within benchmarked variances on cost and time.

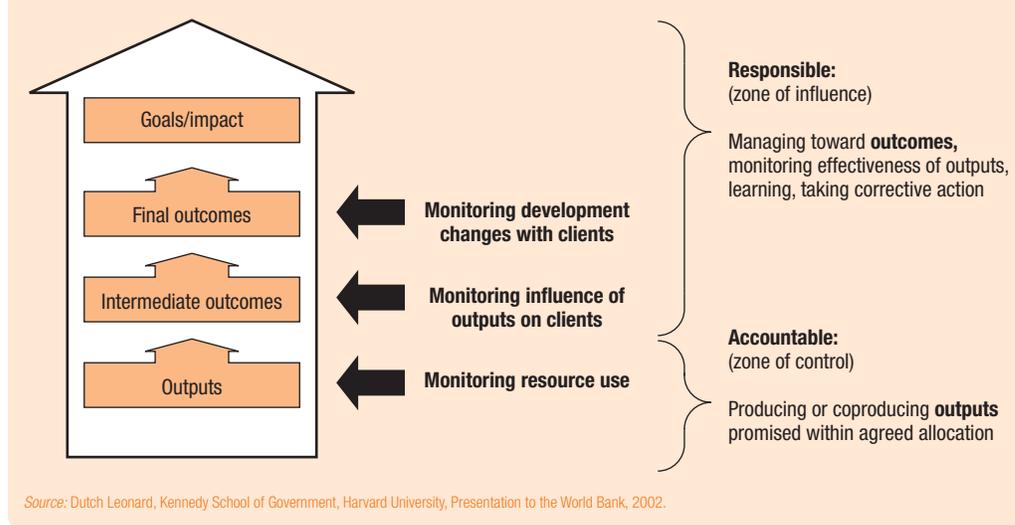
The Centers would also be responsible for monitoring intermediate outcomes: the influence of their outputs on client behavior. The Centers would track CGIAR influence on international institutions to determine whether they benefit from CGIAR science advice. The Centers would track whether research results on the genetic enhancement of high-value species being used by national agricultural research systems and civil society organizations to assist farmers and to raise income from forest and natural resource management. They would be responsible for showing that their outputs are being used and that the clients using them are satisfied with the product.

The Centers would be responsible for monitoring progress toward and evaluating final outcomes with clients, donors, and other partners to ensure that together they have the best mix of outputs for maximum citizen effect.

The methodological challenge is to test causal effects of the CGIAR's contribution beyond the clear zone of control (figure 3.5). Clear attribution of impact at a strategic level is not possible because of the other contributions and conditions necessary for sustainable development. Results information systems are meant to be a lean, strategic management tool. The systems feed into impact assessment, which is done periodically to measure results on the ground and test the validity of the results framework. Impact assessment draws on data outside of results reports to make judgments about possible attributions and unintended impact.

The CGIAR Centers cannot reach poverty reduction goals alone. Successful development requires partnership. And it requires partners to manage the links between them,

Figure 3.5 Accountability and responsibility for achieving results



making explicit mutual obligations to demonstrate and take responsibility for performance based on shared objectives and agreed expectations. Thus an important part of the results approach is to learn continuously with clients, donors, and other partners about how their and CGIAR-supported contributions, and the environment in which they occur, fit together to create development results. And when CGIAR scientists do achieve development goals through participatory research, they cannot scale up to global impact without building on partnerships. The challenge is to strategically partner with others at global, network, and local levels to scale up the effects of the research through complementary services to strengthen institutions and reduce poverty.

Moving forward with a managing for results—international public goods approach

To take full advantage of a results approach, the leadership and managers of the CGIAR and Centers will have to adapt the EPMRs, PMS, impact studies, and strategic plans to a results-based system that collects common results indicators on what they jointly judge to be key strategic objectives.

The most fundamental shift required for the CGIAR system may be cultural. Managing for results is meant to engage employees,

partners, and end users in a learning-based approach that tolerates risk. It rewards knowledge from failure as well as risk, as long as evidence is used to improve performance.

Management for results and international public goods approaches would help to improve accountability in the CGIAR. These approaches replace hierarchical accountability models, which involve one-way reporting between recipient and donor, with mutual accountability, which takes responsibility for performance in light of agreed expectations, and joint responsibility. Mutual accountability is one of the five principles to which donors committed in the Paris Declaration in 2005. In the proposed strategic management for results framework, donors would report on the quality, predictability, and timeliness of their contributions to the CGIAR system, while the Centers would collectively report on outputs, outcomes, and impact.

Notes

1. Preliminary results from two of the other commission studies—analyses of ICARDA research on Syrian fertilizer supply policies and barley production—which focused on direct productivity effects, did not find significant links between technology adoption and poverty reduction.
2. Raitzer (2003).
3. There were two reports by the Working Group: CGIAR (2004a) and Cleaver et al. (2004).

4. The CGIAR Internal Audit Unit (a unit of the System Office) did the verification at first, but now a consultant undertakes verification in collaboration with the Internal Audit Unit. For example, to verify publications, the consultant selects five Centers at random and verifies indicator 4A ("the number of externally peer-reviewed publications per scientist, excluding articles published in journals listed in the Thompson Scientific/ISI"). The consultant then selects another five Centers at random from the remaining Centers and verifies indicator 4B. The remaining five Centers have their 4C data verified.
5. Globescan Inc. (2006b).
6. CGIAR (2008).
7. Some caveats are in order. First, this is very preliminary analysis. Second, correlations do not necessarily imply causality. Third, the definitions of some PMS variables have changed significantly during the last three years, so comparisons over time are risky. This is especially the case for the rating of intermediate outcomes by the Science Council. The rating method has changed substantially from year to year. Finally, the dataset for 15 Centers over three or four years is small.
8. These data are available only for 2007. In 2005 and 2006 the Science Council gave only a combined score for a Center's five best intermediate outcomes, but did not rate individual intermediate outcomes on a 10-point scale.
9. Iskandarani and Reifschneider (2007), p. 3.
10. Research staff is defined as GF-level staff and above that work on research in the Development Economics Department. The department also tracks citations that could be a useful additional indicator to CGIAR's PMS to track the impact of research.
11. Science Council (2006f).
12. Wadsworth et al. (2007).
13. Other major conferences include the 2003 Rome Declaration on Harmonization, the 2004 Marrakech Roundtable on Results, and the 2006 Vietnam Roundtable in 2006 on core principles for applying good practice results. The OECD-DAC Working Party on Aid Effectiveness oversees the process of ensuring progress on the Paris Declaration agreement. Annual reports and recent evaluation are available on the OECD-DAC website (www.oecd.org).

Addressing gender issues in development is an institutional responsibility—not the responsibility of a subset of staff drawn from target groups. What is needed is accountability through more gender analysis and performance measurement and reporting

The Panel finds that despite good efforts by particular CGIAR Centers and progress made by the CGIAR's Gender and Diversity Program, the CGIAR System and Centers have not integrated gender into their research and outreach mandates, nor are they yet doing enough to ensure that gender equity and diversity analysis inform their staffing.¹

The Panel concludes that the CGIAR and its Centers need a more empirical approach to ensuring that barriers to gender equity and diversity are eliminated. Data-based performance measurement and reporting are needed to identify unintended adverse impacts in seemingly gender-neutral program designs, science agendas, and employment systems. Progress on gender equity and diversity at the CGIAR—both for development impact and internally—will require moving from an advocacy to an accountability model for anticipating and eliminating adverse impacts.

To appreciate the need for a more quantitative, accountability-based approach, it is important to understand the need to frame gender equity and diversity appropriately. Integration of equity issues has too often been approached as a problem of individual behavior and perception, leading to solutions based on advocacy that are ad hoc and without systematic institutional support. Decades of experience have now shown that such solutions do not succeed. Instead, the CGIAR and its Centers must frame gender equity and diversity as issues of development and institutional necessity.

The Panel further underlines that the CGIAR and its Centers cannot effectively address either gender or diversity simply by adding scientists who are women or who

come from developing countries. That is not what this chapter recommends—far from it. Addressing gender issues in development is an institutional responsibility—not the responsibility of a subset of staff drawn from target groups. What is needed is accountability through more gender analysis and performance measurement and reporting.

Gender is not yet integrated into CGIAR research

The CGIAR System generally recognizes gender integration as an important or very important part of its research mandate. Yet it also acknowledges that the CGIAR and its Centers have not effectively integrated gender into their research and outreach mandates. Scant evidence can be produced to show that the CGIAR is addressing women's agricultural contributions, their special agricultural knowledge, or their agricultural needs in ways that reflect their full importance to agriculture (as recognized by the World Bank's *World Development Report 2008* and by CGIAR and Center leadership).

The Panel specifically finds that there is:

- No systemwide policy on gender in the CGIAR.
- No leadership on gender at the CGIAR System level (Chairs, Executive Council, Secretariat). A pattern of misplaced reliance by CGIAR leaders on submanagerial staff functions has shunted responsibility for gender away from operations management and professional staff.
- No attention to gender research and development issues in the Annual CGIAR Performance Indicators.

- Negligible attention to gender issues in the CGIAR's Science Priorities.
- Negligible attention to gender issues in the CGIAR's Medium-Term Plans.
- Negligible attention to gender issues in External Program and Management Reviews (EPMRs); unless specifically requested by a panelist.
- Negligible attention to gender issues in Center strategies and work plans (with a few exceptions).
- No gender-disaggregated reporting requirement for project management.
- No gender-disaggregated reporting requirement for monitoring and evaluation systems.
- No mandate for any CGIAR body—not even the Gender and Diversity Program or the Participatory Research and Gender Analysis Program—to track progress toward institutional objectives in gender research and technology development.

In short, gender has not been integrated into the CGIAR's research and outreach work.

Certainly, some individual scientists and Centers have already addressed gender in research and outreach—at times with gender coordinators or advisors supporting their work. Donors can require attention to gender in the projects they fund. And although the Panel was not called on to assess the work of individual Centers on gender, it noted that IFPRI, ILRI, and IIRRI are often cited for having done good work. The Participatory Research and Gender Analysis Program has, in many cases, supported such efforts. Generally, though, attention to gender analysis in the CGIAR is ad hoc and depends on individual initiative.

So far, the Centers have not adopted proven institutional practices to measure gender-related impacts or to devise measures for meeting women's and girls' specific needs. Though there have been clear examples of efforts by particular Centers on gender, such efforts are not managed as a systemwide priority.

CGIAR members have accepted System Priorities that do not include gender as a priority or as a cross-cutting theme to be managed and consistently measured in priority areas. And neither the CGIAR nor the Centers address gender in their institutional guidance and management instruments.

Gender goes almost unmentioned in CGIAR's key instruments for aligning the work of Centers with System Priorities. For example, the EPMRs have rarely covered gender—and where they have, such coverage has not been consistent (box 4.1). Similarly, CGIAR's Impact Assessments reveal little evidence of analysis, action, or impacts related to gender. The CGIAR does not systematically collect successes and lessons learned on gender, nor is work done by the Centers analyzed systematically for possible unintended results.

Having no evidence of positive or negative gender impact does not demonstrate a lack of impact. Neutral interventions can have positive or negative impacts. Whether they help or harm women and girls can only be known if gender analysis is integrated into assessments at all stages of a program.

Box 4.1

Inattention to gender in the CGIAR's External Program and Management Reviews

According to a review of the External Program and Management Reviews (EPMRs) commissioned by the Panel for this report, "Substantive consideration of gender in [the reviews] is still the exception rather than the rule."

The review found that gender in programs is:

- *Mentioned somewhat* in the EPMRs of CIAT, CIMMYT, CIP, and ICRISAT.
- *Mentioned very slightly* in the EPMRs of the Africa Rice Centre, ICARDA, ILRI, IPGRI, and IWMI.
- *Not mentioned* in the EPMRs of CIFOR, ICLARM, IFPRI, IITA, IIRRI, and World Agroforestry.

The review stated: "Some EPMP Panels claim that good science is blind to gender. But if the ultimate objective of the CGIAR is an impact on food security, poverty reduction and sustainable natural resource management, attention to gender is unavoidable."

A cursory review of the External Program and Management Review Guidelines (issued by the Science Council) shows that they are silent on the need for attention to gender in the reviews' assessments of the Centers' science. Thus, any gender coverage is purely at the discretion of each review panel.

Source: Gibbs (2008).

This principle means shifting from an advocacy-based approach, which addresses personal persuasion and is supply-driven, to an accountability-based approach, which addresses institutional standards and is demand-driven

The Panel is optimistic that the CGIAR will embrace a more serious approach to gender. Some champions exist; good work has been done; and a critical mass of CGIAR respondents show a readiness to adopt empirical and institutional approaches. (For example, 43 percent of respondents to the 2008 Independent Review Panel survey of informed stakeholders called the inclusion of gender measures in the Performance Measurement System “important.”)

Why the CGIAR and its Centers need an integrated gender accountability framework

Evidence from the recent past has taught us that we must test our assumptions about the impact of an evolving agricultural world on women living in a subsistence environment. Research done since the early 1980s has shown that no development intervention can claim to be gender-neutral without a systematic analysis of its impact on women’s and men’s social and economic roles.

For institutions this principle means shifting from an advocacy-based approach, which addresses personal persuasion and is supply-driven, to an accountability-based approach, which addresses institutional standards and is demand-driven. An accountability-based approach requires action to prevent unintentional harm, and it requires action to improve the status of women and girls. Since integrating women is a development effectiveness issue, it is a professional responsibility and not a matter of personal persuasion. Equality-based organizations are organizations that measure such impacts—not those that claim to be gender-neutral. (Unfortunately the agricultural reforms of the 1990s, based on economic liberalization and “structural adjustment,” have tended to revive long-discredited assumptions about gender neutrality.)

Agriculture in developing countries today has been called “vast, varied, and changing.”² The Panel recognizes that this places strong limits on the availability of sex-disaggregated data. Local variation in gendered patterns makes generalizations awkward. Nevertheless,

the fact that recent World Bank findings on gender in agriculture and development mirror those of the 1970s and 1980s³ points to the international community’s ongoing failure to address the different needs of women and men in agriculture. Although women are now often the majority in an expanding commercial workforce for developing country agriculture, familiar patterns continue to favor men over women. For instance, in the growing horticultural sector, men tend to predominate in “permanent” positions; in contrast, women work less rewarding and empowering “flexible” jobs (casual or seasonal). However, some opportunities for women are also being created with these shifts—through access to higher-value crop production and through increased demand for labor.

Because gender inequalities are so intertwined with slow progress in agricultural development—and especially considering the current food crisis and the loss of potential productivity by women farmers—the Panel took a close look at the CGIAR’s record on gender. In the CGIAR System’s research agenda, the only program for responding to gender is the Participatory Research and Gender Analysis Program (PRGA). The PRGA was launched in 1997 “to treat participatory research and gender analysis as strategic research methodologies for generating agricultural technologies for poor farmers,”⁴ with CIAT as its convening Center.

In 2007 the First External Review of the PRGA called the PRGA’s performance on gender unsatisfactory, arguing that this program is unlikely to succeed at systemwide gender mainstreaming—in part because it remains focused on advancing participatory research, rather than gender. In addition, several gender specialists argued that “using the PRGA program . . . to mainstream gender . . . reinforces the assumption that gender research is qualitative, participatory, and soft.” The Science Council, in a note attached to the First External Review, made recommendations—to broaden the PRGA’s mandate to include institutional incentives for systemwide adoption and to phase out the

PRGA's participatory research component in favor of its gender mandate (or else find other instruments to scale up gender). Those recommendations have gone unheeded.

The 2008 Independent Review Panel survey of informed stakeholders sought to assess the CGIAR's consideration of gender in Center leadership. Most CGIAR respondents indicated strong support for integrating gender into research. Seventy-nine percent of respondents, and 80 percent of Center governance and management, judged gender integration "important" or "very important." Despite this wide recognition of gender's importance, the Independent Review Panel survey found that fewer than half of Center management judged their collective efforts on gender "effective." And among all respondents, only one-third judged the CGIAR's record on gender "effective." Asked to comment on varied approaches to improving the track record of the CGIAR and the Centers, only a minority of each group of respondents believed that "no change is needed."

Training and best-practices materials are not enough—they must be supported with data-intensive approaches to ensure accountability

The Independent Review Panel survey of informed stakeholders asked respondents to indicate whether they favored various suggestions for improving the CGIAR's and Centers' approach to gender in research and related activities. The suggestion that received a favorable response from the largest share of all respondents (59 percent) was "Provide training and guidance materials or best practices on gender and diversity in agriculture." The Panel found that disappointing. The CGIAR and Centers already have many training and best-practices materials on integrating gender into development for agriculture and agriculture-related areas (such as health and nutrition). To make progress on gender, other, data-intensive methods are needed and urgently require attention.

There is no question that the CGIAR and Centers must continue to provide training and

guidance on best practices. But to ensure that such materials are practically used to adjust science to the needs of poor women and children (as well as men), accountability—with collection and analysis of gender-disaggregated data—is essential. That has been clear to researchers of development for decades.

Unfortunately, acceptance of data-intensive approaches is low where it counts the most. On the Independent Review Panel survey of informed stakeholders, just 20 percent of the CGIAR's Board Chairs and Center Executives responded favorably to the proposal "Collect more gender disaggregated data and performance indicators for [the Performance Measurement] System." This lack of support for performance reporting and measurement stands in the way of further progress on gender at the CGIAR and its Centers.

The Panel recognizes that managing gender well is a complex undertaking. To make gender a matter of professional responsibility in reaching CGIAR Strategic Objectives, consistent leadership will be needed (as implied in the gender frameworks used by IFPRI and ILRI). Support on gender must include investing in technical capacity and providing financial support, using existing management and accountability systems, and shaping a strong organizational culture that addresses the needs and preferences of women and girls. Finally, the experiences of successful gender programs show that—to create incentives for integrating gender issues through institutional planning, programming, and reporting instruments—staff positions on gender need redefining to ensure that they support management to integrate gender into institutional accountability.

The CGIAR's Gender and Diversity Program

The CGIAR's Gender and Diversity Program is focused on improving career opportunities and institutional environments for Group 2 nationals and women. Hosted by the World Agroforestry Centre in Nairobi, the program reports to the Director

The Independent Review Panel survey of informed stakeholders found that fewer than half of Center management judged their collective efforts on gender "effective"

Rather than seeking to remedy intentional discrimination by individuals through advocacy, best practice seeks to remedy systemic discrimination by quantitatively measuring the impact of seemingly neutral systems in employment

General there and to the CGIAR System Office Steering Committee. A 1999–2003 external review of the program found that it had made rapid, excellent progress in the mere four years of its existence.⁵ The review attributed this progress to the program’s leader, who, with a staff of just one to three people, provided CGIAR Centers with a variety of tools. In addition, the Bill & Melinda Gates Foundation has recognized the program’s leadership with the African Women In Agriculture Research and Development (AWARD) Fellowships. The fellowships include a \$13 million grant to pilot a gender program in agriculture, which, if successful, will likely be extended. Clear, measurable outcome results have been set for the AWARD program and there is much evidence of its future promise.

The Gender and Diversity Program has been less successful at promoting accountability around systemic employment barriers to women and Group 2 nationals at CGIAR Centers. To regularly identify and eliminate such barriers in all aspects of CGIAR-sponsored Center employment—from entry to compensation, promotion, development, and exit—the Centers need to adopt a more sophisticated approach. This work needs to be harmonized to aid mutual learning among the Centers, and to allow progress on internal gender and diversity to be reported in the CGIAR Annual Report.

The CGIAR should shift management for internal gender and diversity to a new human resources function, with performance-based data reporting and accountability

The Gender and Diversity Program has a strategy of allowing autonomy to the Centers, which determine their own objectives; the program then responds to their requests. The 2003 external review leaned toward safeguarding this autonomy. Rather than urging more commitment to program objectives through increased accountability for Center management and boards, the review suggested that greater accountability measures

were optional. Such an approach, though, does not create networkwide incentives to identify and remove common barriers to equity.

The 2003 Review Panel also called for the system’s Human Resources Advisory Service to develop Human Resources Guidelines—comparable to Financial Guidelines—including for gender and diversity. But the Advisory Service has never found its feet and has not provided the CGIAR with adequate support for tackling larger human resources management issues.

In a networked system, even more than in a traditional institutional setting, management for a barrier-free environment is key. In recent decades, legal action and social science research have changed our understanding of workplace discrimination. As our understandings of different types of discrimination have evolved, so too have our remedies for each.

Rather than seeking to remedy intentional discrimination by individuals through advocacy, best practice seeks to remedy systemic discrimination by quantitatively measuring the impact of seemingly neutral systems in employment. This data-intensive approach uses information on the representation of target group members in the recruitment pool—setting goals for proportional representation in recruitment based on the numbers of available qualified individuals.

Recognizing that gender and diversity tracking has been the cornerstone of employment equity programs, the Panel explored whether the CGIAR System measured the effects of its own employment systems. The Panel asked for data on the representation of women and developing country (Group 2) nationals by job category and by compensation levels. It was told that although such data are collected, the way they are collected makes comparisons and trend analysis difficult. So, the Panel included questions on its Independent Review Panel survey of informed stakeholders to solicit respondents’ views on the present approach and to test their readiness

to move to a more institutional workplace-equity model.

Asked “What should be done to improve the CGIAR and Centers’ approaches to achieving gender and diversity objectives?”, many respondents to the Independent Review Panel survey called for a more empirical approach to—and more accountability for—gender and diversity in the Centers’ human resources management. A stronger empirical base is needed to reveal how different groups fare in hiring, promotion, training, evaluations, and layoffs. Centers are not using stock and flow data regularly to manage barrier-free movement of staff through hire, promotions, and staff development opportunities.

After the 2003 external review the Gender and Diversity Program launched a new strategy with a strong focus on decentralized accountability mechanisms. But without annual commitments to report on gender and diversity performance, the approach has no teeth. And visits to the Centers indicate that the approach has been unevenly adopted.

Overall, there has not been a sufficient systemwide effort to use statistical methods proven in identifying unintended institutional barriers. The CGIAR and the Centers have no common practice—or even understanding—of gender and diversity performance management. Most Centers do not conscientiously or consistently collect data to reduce adverse impact in employment practices. An update to a 2003 baseline staff profile, for example, is now behind schedule because of difficulties in retrieving datasets.

The Gender and Diversity Program’s staffing survey shows good progress since 2003—but more systematic accountability is needed

Early reports from the staffing survey led by the Gender and Diversity Program indicate that both groups made good progress between 2003 and 2008. The number of female scientists doubled between 2003 and 2008, increasing their share in this staff group from less than 20 percent to 26 percent. And among Center scientists, those who

were Group 2 nationals rose from 58 percent in 2003 to 66 percent in 2008. The picture for Center management, however, is more mixed. Between 2003 and 2008, the share of women in management doubled from 9 percent to 18 percent—still a very low figure. Over the same period the share of Group 2 nationals in Center management decreased from 46 percent to 35 percent.

These figures will have more meaning when the full report is available, with more contextual data, in February 2009. Yet they generally suggest that the Gender and Diversity Program’s strategy has had an impact. Similarly, the results of the 2008 Independent Review Panel survey of informed stakeholders show that the Gender and Diversity Program has done an excellent job with few resources in advocating and supporting diversity in the workplace. But to convince the Centers to take accountability for managing equity systematically and professionally—to identify hidden barriers and to sustain progress—more sophisticated approaches will be needed.

One reason to embrace such systematic, professional methods for managing gender equity and diversity is to ensure science quality. Some comments by respondents to the Independent Review Panel survey report an unsettling perception: that efforts to make progress on gender and diversity have threatened the quality of science. The experience of many organizations has shown that when recruitment targets are set without analyzing availability profiles, and without analyzing the movement of targeted groups once employed, two problems result:

- When targets are disconnected from availability, some of those hired may lack needed qualifications—and will be destined to fail.
- When barriers in employment systems are not identified or remedied, exclusion will continue.

To avoid these problems at the CGIAR, only a more evidence-based approach to identifying employment targets—aligned with accountability, and revealing unintentional and

Any new Center-based information management will have to be accompanied by strong guidance on using performance-based data to manage and to report on gender and diversity

hidden barriers—will do. Any new Center-based information management will have to be accompanied by strong guidance on using performance-based data to manage and to report on gender and diversity.

Notes

1. The Panel reviewed performance on gender in the research mandate. Diversity issues were not covered

because policy and evaluations on diversity were not available. Gender issues do cut across all groups, and the approach recommended for gender could equally be applied to diverse social, ethnic, and economic groups.

2. World Bank (2007b), p. 1.

3. World Bank (2007b).

4. CIAT Participatory Research and Gender Analysis website: <http://www.ciat.cgiar.org/asia/prga.htm>, accessed September 18, 2008.

5. Castillo and Fogelberg (2004).

Resource mobilization, allocation, and management

The research Centers are experiencing a quiet financial crisis. This has been masked by growing nominal (before inflation) revenues and increasing numbers of grants. It is nonetheless real

The research Centers are experiencing a quiet financial crisis. This has been masked by growing nominal (before inflation) revenues and increasing numbers of grants. It is nonetheless real.

The Centers face five financial challenges:

- Funding for the Centers has not grown after inflation for more than a decade. In contrast, several international development institutions have received record replenishments of their concessionary and grant funds—suggesting that the problem has not been a lack of available resources, but the failure of the CGIAR and Centers to set up institutions that mobilize funds well.
- Funding has become increasingly restricted, with a proliferation of smaller, targeted grants. While this has benefits for donors, it means higher administrative costs for Centers, some increased financial risk, and less flexibility to follow promising lines of research.
- Funding has been increasingly piecemeal rather than strategic. Every review of the CGIAR in the past decade has recommended stronger central coordination of funding and a tighter link between priorities, performance, and fund allocation.
- There are deficiencies in financial management at some Centers—notably at CIAT in recent years (box 5.1)—and tools for managing financial risk across the partnership are limited.
- As cross-cutting, multipartner Challenge Programs have made the

research network and partnership more complex, that complexity has made financial management and control more difficult. The ad hoc arrangements for different Challenge Programs are not a strong foundation for helping financial systems to cope with increasing numbers of such programs.

In good times these would be significant problems. Now, during the food price crisis, new ideas and approaches are needed even more urgently. There is no easy solution. Because the problems are interrelated, the Panel believes that the financial challenges can probably be resolved only as part of an overall change in the partnership's institutional structure. Centers need more resources and, in particular, more unrestricted funds—and donors are unlikely to provide them without greater assurance of strategic effectiveness and performance. A new institutional and financial structure, with new tools for resource mobilization, needs to be part of a general reform package.

Most multilateral organizations would prefer to mobilize funds on a pooled basis. This allows for a performance-based system that allocates money more strategically, by priority—and gives recipients strong incentives for good performance.

Pooled funds also have a number of major advantages for stakeholders:

- They enable donors and doers to agree on a strategic results agenda.
- They provide a channel for mobilizing major increments of funding.
- They provide a means of eliciting commitments (including financial management commitments) by all involved.

A recent financial crisis at the International Center for Tropical Agriculture (CIAT) nearly led to that Center's closure. One of the CGIAR's oldest and largest Centers, CIAT suffered great financial harm from injudicious management decisions and the failure to recognize flaws in its business model. Although the Center experienced a 30 percent increase in revenue since 2000, the Center's financial health—measured by several indicators—sharply declined. By the end of 2006 CIAT's reserves had fallen to an amount equivalent to just 18 days of spending (the CGIAR standard is 75–90 days).

CIAT is a case study in the many financial challenges facing the Centers. A significant decline in unrestricted funding coupled with the Center's inability to recover full costs on its restricted contracts were underlying causes of the crisis. The CIAT crisis unfolded over a period of years, yet the Center's financial management and oversight failed to recognize that full direct and indirect costs for projects were not being recovered. In the words of CIAT management, "Overheads to cover institutional costs (indirect project costs) . . . were often not included at realistic levels (largely a result of limitations imposed by donors) and full direct costs, prior to June 2007, were rarely included at all."¹

The fiduciary responsibility for CIAT's financial woes lies with CIAT's Board of Trustees and executive management. But financial oversight and leadership at the CGIAR System level

did not help—it failed to stem CIAT's losses over the long term. Though the CGIAR Secretariat flagged CIAT's poor financial state year after year, the Secretariat took no further action to correct the CIAT business model's grave underlying problems. For example, if the Secretariat had reviewed variances against project budgets it could have learned that the cost recovery issue was a chronic one—and an intervention with donors to rectify some underpricing might have been possible.

The Panel notes that, during the CIAT crisis, the CGIAR disbanded its Finance Committee and eliminated an important instrument of financial oversight and transparency. The Panel notes, further, that neither the CGIAR financial report for 2006 nor the CGIAR financial report for 2007 discussed the CIAT crisis at significant length.

CIAT exemplifies an extreme case of the difficulties that Centers face when financial management systems do not respond properly. Presently, most Centers are recovering less than 100 percent of full indirect costs on restricted projects while continuing to deal with declining levels of unrestricted funding. There is evidence that even the Challenge Programs—a program design by the CGIAR and its affiliated Centers—do not allow full recovery of indirect costs.

1. CGIAR, Ad Hoc Finance Committee of the Executive Council (2008).

If the CGIAR is to substantially increase its funding of Centers and programs and strengthen the financial management of the partnership, it must consider a pooled funding approach.

Research funding has stagnated

From 1995 to 2007, total revenues for the CGIAR and its affiliated Centers increased from \$344 million to \$520 million in nominal US dollars, a 51 percent increase, or an average annual growth rate of 4 percent. A compound annual growth rate of 4 percent, in nominal revenues, has not been sufficient to fund real growth after inflation. In constant dollars revenues have been flat, rising only \$21 million in 12 years (tables 5.1 and 5.2).¹

The Panel believes that the failure to mobilize funds is attributable, in part, to the inefficiencies inherent in the current matrix of 64 members and 15 independent Centers, all

requiring donor-Center relationships that result in increased transaction costs and an inefficient way of doing business. The Panel also finds that the lack of a single entry point for donors establishes a bias toward nonstrategic, project by project, targeted funding, depriving the CGIAR and its affiliated Centers of opportunities to engage in more robust, systemwide, strategic programs.

Funding is more restricted

Not only has real funding failed to grow, but there has also been a trend toward restricted funding (figure 5.1). In 1995, 37 percent of funding received by the Centers was restricted. By 2007, 64 percent was restricted—a major shift with significant implications for financial management (table 5.3).

Although there are some advantages some donors to restricted funding, there are major burdens for the Centers. First, restricted

Table 5.1 Nominal funding of CGIAR and affiliated Centers, 1995 and 2007

US\$ millions

Funding source	1995	2007	Change		12-year compound annual growth rate (percent)
			Amount	Percent	
Grant funding	329	495	166	50	4
Other income	15	25	10	67	4
Total revenue	344	520	176	51	4

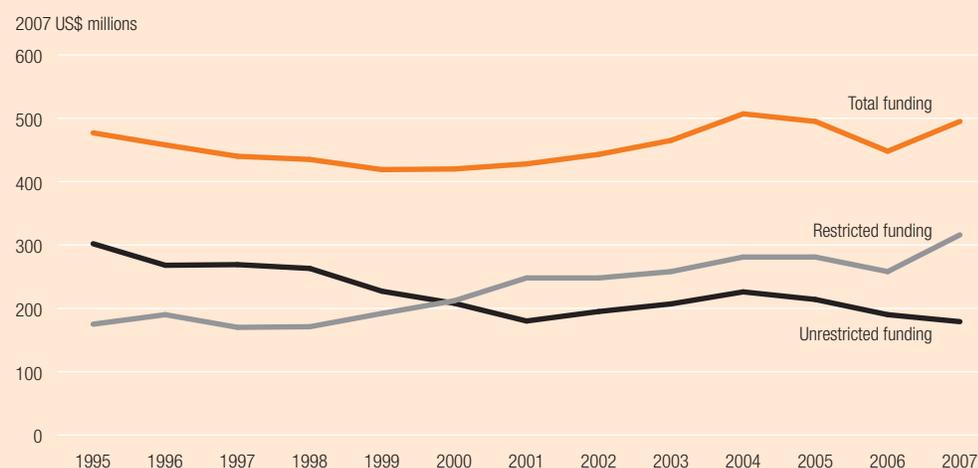
Source: CGIAR Financial Reports (CGIAR 1995, 2007).

Table 5.2 Constant dollar funding of CGIAR and affiliated Centers, 1995 and 2007

2007 US\$ millions

Funding source	1995	2007	Change		12-year compound annual growth rate (percent)
			Amount	Percent	
Grant funding	477	495	18	4	0
Other income	22	25	3	1	0
Total revenue	499	520	21	4	0

Source: CGIAR Financial Reports (CGIAR 1995, 2007b), adjusted for inflation index (2007 base).

Figure 5.1 Restricted and unrestricted funding for CGIAR

Source: CGIAR Financial Reports 1995–2007 adjusted for inflation index, 2007 base.

Table 5.3 Restricted and unrestricted funding for the CGIAR System

2007 US\$ millions

Type of funding	1995	Percent of total funding	2007	Percent of total funding	Change	
					Amount	Percent
Restricted	175	37	316	64	141	81
Unrestricted	302	63	179	36	-123	-41
Total	477	100	495	100	18	4

Source: CGIAR Financial Reports (CGIAR 1995, 2007b), adjusted for inflation index (2007 base).

grants have a higher level of administrative costs. Second, restricted funds cannot be recognized as revenue until costs are incurred, a situation noted in annual financial reports as causing unfavorable budget variances (although the funding is available, it cannot be recognized). Third, and most important, restricted funding is directly correlated with financial instability at the Center level. Regression analysis shows a positive correlation of 38 percent between restricted funding levels and surpluses/deficits.

Research work programs have become more fragmented

The Panel finds that several unfavorable trends in grants, most notably the increasing number and decreasing size of research grants, place additional administrative burdens on the Centers. For example, CIAT, ICRISAT, and IITA were each managing more than 200 restricted grants in 2007. From 1999 to 2007 the total number of ICRISAT's restricted grants rose by 130 percent (an increase of 127 restricted grants). IITA now has about twice as many restricted grants to manage as it did in 1999 (figure 5.2).

The shift toward smaller restricted grants (figures 5.3 and 5.4) exacerbates the transaction cost problem (fixed transaction costs translate into higher costs for smaller grants). The smaller grants also tend to be of a non-strategic, project by project nature.

The Panel's grant findings are not new. In March 2006, the Report of the Third External Program and Management Review of World Agroforestry reached similar conclusions and noted concerns that "smaller projects carry a heavy administrative burden which is out of proportion to the science and income they generate."² The External Program and Management Review Panel noted that in 2005, 67 of 162 of World Agroforestry's active projects were funded at less than \$50,000. While accounting for 41 percent of total grants, this group of projects represented only 6 percent of World Agroforestry's restricted income and less of its total income.³

Figure 5.2 Rising numbers of restricted grants to selected CGIAR Centers, 1999–2007

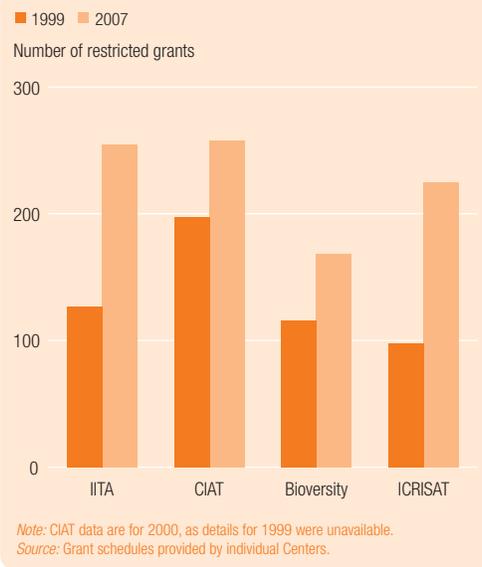


Figure 5.3 Rising numbers of small grants (less than \$100,000) to selected CGIAR Centers, 1999–2007



While small grants are not all bad, the overall balance in funding for some Centers has shifted too far toward small grants. In such cases, small grants generate a disproportionate amount of administrative activity, potentially distracting resources from important research objectives. Although difficult, the CGIAR System and affiliated Centers need to consider what is a reasonable minimum for

Figure 5.4 Restricted grants by size for selected CGIAR Centers, 2007



restricted grants to ensure that costs of such grants do not outweigh the benefits.

Under the proposed model, a new initiative to pool donor funds, the CGIAR Fund (see chapter 8), should work to redress the balance in grant size.

Business practices must keep pace with shifts in funding

As more and more funding is restricted, Centers must strengthen their cost controls, especially their ability to fully recover indirect costs on restricted projects. To date, full cost recovery varies significantly across Centers. A few Centers have reported 100 percent recovery of indirect costs—but others struggle with the need to renegotiate contracts where donor practices and constraints restrict such recovery. In some cases, there may also be a failure of Center management to fully understand, manage, and negotiate full cost recovery contracts. Until all restricted projects assume their full share of indirect costs, donors of unrestricted funds are subsidizing restricted projects. The recommended Consortium of Centers, with a formal policy on full costing of research (see chapter 8), will help.

The question is often asked about what level of unrestricted funding is adequate or appropriate. As a benchmark indicator, a consultant to the Panel calculated total indirect costs for each Center (as reported in Exhibit II of the 2006 financial reports) and compared the indirect cost with the unrestricted funding available to each Center. Each Center had more than adequate unrestricted funding to cover all indirect expenses. At the low end, unrestricted funding covered 1.57 times indirect costs (World Agroforestry). At the high end, unrestricted funding covered 3.59 times indirect cost (CIP; see figure 5.5). Although the benchmark is useful in comparing indirect cost coverage, it does not take into consideration other expenses that are typically covered by unrestricted funding, including capital expenditures.

Cash flow is strong—but reserve targets should be increased

From a financial perspective, cash is the lifeblood of an organization. In 2007, the CGIAR and its affiliated Centers had a strong (cash flow) liquidity position, with enough cash or near-cash assets to meet short-term liabilities.

In addition to a liquidity indicator, each Center also calculates a reserve benchmark to determine whether it is prepared to meet longer-term financial disruptions. The Panel reviewed current reserve indicators for the Centers and recommends two changes. First, the CGIAR’s current cash reserve “benchmark” of 75–90 days should be extended to 180 days or six months to reflect the intended “longer-term” nature of the benchmark. Second, Centers should not be penalized if they build even larger reserves (for some Centers these might eventually approach the size of endowments). It would also be useful to identify where and to what extent reserve balances have been earmarked or designated (what are the reserve restrictions). In reviewing benchmarks, the Panel noted a shortcoming in the calculation of the reserve and liquidity benchmarks. In cases where a Center does not have long- or medium-term assets, the reserve

Figure 5.5 Unrestricted funding compared with total indirect costs, by CGIAR Center, 2006



Source: CGIAR Financial Report (CGIAR 2006d).

calculation is not meaningful as it is the same calculation as the liquidity indicator.

Capital investment declined sharply to 2003 and has only partly recovered

Capital investment is essential for keeping at the forward edge of science. But capital investment (in constant US dollars) declined across the Centers, from \$30.3 million in 1994, to below \$10 million in 2002 and 2003. It rose to \$18.7 million in 2007—still 38 percent below its 1994 level (figure 5.6).

Center reserves are used to fund capital expenditures, but Center reserves can be replenished only with adequate levels of unrestricted funding. It is no surprise that levels of capital expenditures have decreased as unrestricted funding levels have decreased. With declining levels of unrestricted funding already stretched to cover indirect costs, the Panel finds that some Centers have not had the resources to make necessary capital investments. Discussions with selected Center financial Directors confirmed that capital expenditure levels do not adequately cover either cyclical investment requirements or investments in new systems and technologies.

The Centers and the new Consortium of Centers (see chapter 8) should identify

investment needs, taking into consideration long-term strategic goals and what will be required to maintain comparative advantage.

Challenge Programs greatly increase the complexity of financial management of the CGIAR System

The Challenge Programs, collaborative research efforts on issues of global or regional significance, were introduced in 2003. They were expected to mobilize incremental funds for the Centers. In some cases, however, they have instead absorbed funding that otherwise would have gone directly to the Centers.

Although what would have happened without the Challenge Programs cannot be known with certainty, it is clear that they have not driven revenue growth for the System as a whole. To achieve major gains in funding for the CGIAR System, other tools for mobilizing resources probably will be needed.

Challenge Programs have created problems in other areas of financial management within the CGIAR System. First, since funding for Challenge Programs is by definition “restricted,” it has contributed to the rise in the share of restricted funds. Second, the governance and financial management of each

Figure 5.6 Capital investments of CGIAR Centers, 1994–2007



Note: Constant dollar calculations based on inflation data included in CGIAR financial reports. The base year is 2007.
Source: CGIAR Financial Reports 1994–2007.

Challenge Program is unique. A program may be an incorporated or unincorporated joint venture, a program of a host Center, or some other form of partnership. It may or may not have audited financial statements. The Panel advises that all Challenge Programs should have independently audited annual financial statements, with governance arrangements to enable such audits. Third, the complexity of the Challenge Programs creates obstacles to overall financial reporting by the CGIAR Secretariat. There are inconsistencies in reporting across the System (CGIAR Secretariat), program (Challenge Program management), and Center (host) levels. Some sources report funding on a cash basis, some on an accrual basis, and some on a “hybrid” of both. It is difficult to relate or reconcile what the Secretariat reports to what the Challenge Programs and Centers report individually.

The Panel believes that the materiality, importance, and multipartner complexity of the Challenge Programs require more financial control—not less. It recommends that a single administrative home be created, with standardized policies and procedures for establishing and managing the Challenge Programs.

The Panel’s recommendation of a single administrative home for Challenge Programs in the Consortium of Centers (see chapter 8)

partly reflects the desirability of simplification and standardization. But it also reflects the Panel’s view that having one or two “host Centers” manage the finances of the Challenge Programs—while those Centers pay for a substantial amount of research funded by the Challenge Programs—presents a conflict of interest. Five years of experience with pilot programs and Challenge Programs indicate that the Challenge Programs have not led to major increases in funding. They have not led to more unrestricted funding, longer-term funding, or strategic performance-based allocation of pooled resources.

The Multi-Donor Trust Fund is too limited a model

The World Bank Multi-Donor Trust Fund (MDTF) for the CGIAR was established in 2005 to enable donors to channel funds to the CGIAR and the Centers.⁴ In 2007, about \$100 million—nearly a quarter of all contributions to the CGIAR that year—were channeled through the MDTF.

Trust Fund Administration Agreements are prepared annually by the CGIAR Secretariat with each Center and each donor wishing to use the MDTF. For its services the World Bank charges an administrative fee (0.175 percent of the total sum).⁵

To achieve a quantum improvement in funding, more is needed than a slightly modified MDTF

Each agreement names a Center or Centers to receive funds and notes the conditions—if any—on their use.⁶ A donor may require the World Bank, through the CGIAR Secretariat, to make specific agreements with Centers before disbursing the funds. But the Bank does not audit compliance with the conditions.⁷

That the Bank does not audit Centers' compliance with conditions in MDTF agreements has caused concern. In 2006, the European Commission asked the Bank to provide assurance that the funds channeled through the MDTF were used as agreed—but the question of who should provide such assurance remained unresolved.⁸ This problem of assurance is related to a larger problem with the Centers' accountability for how funds are used.

The MDTF is an important convenience to donors. It reduces transactions costs and simplifies accounting, avoiding the need for multiple agreements and separate transactions between the donor and Centers. And, because of policy or program constraints internal to each donor, it might be easier for some donors to make contributions through a multilateral institution than directly to a research center.

Nevertheless, to provide the structure for a rejuvenated resource mobilization system, and meet the needs of a revitalized CGIAR, the MDTF would need to be a much more substantial operation.

The Panel suggests that to achieve a quantum improvement in funding, more is needed than a slightly modified MDTF. The Panel proposes a balanced partnership model as the governance structure for the partnership between the CGIAR and the network of Centers (see chapter 8).

There must be a link between resource allocation and System priorities

The 2005 CGIAR Annual General Meeting endorsed a set of 5 research areas and 20 overall priorities for 2005–15, proposed by the Science Council.⁹ Chapter 3 discusses how

these System Priorities have not effectively guided resource allocation.

In June 2008, Working Group 1 of the CGIAR Facilitated Change Process began to outline a foundation for a strategy and results framework which—with more articulation—could guide performance-based allocations. The Working Group produced a new vision, two mission statements, and three main strategic objectives, as follows:

- *Food for people.* Sustainably increase productivity and the production of healthy food and for the poor.
- *Environments for people.* Conserve, enhance, and sustainably use natural resources and biodiversity to improve the livelihoods of the poor in response to climate change and other factors.
- *Policies for people.* Promote policy and institutional change to stimulate agricultural growth and equity that will benefit the poor, especially rural women and other disadvantaged groups.

Each of the three objectives is accompanied by notional indicators (to be further developed) and by an appreciation of key opportunities, major players on the scene, CGIAR advantages, and CGIAR functions that support the key opportunities.¹⁰

There is no process yet for determining how to allocate resources among priority areas.

The existing model that most closely resembles the Panel's recommended approach to CGIAR resource mobilization and allocation is the management of the World Bank's \$50 million annual grant from the Development Grants Facility to the CGIAR, Centers, and programs. The Panel examined the evolution of this approach alongside other options.¹¹

The World Bank's allocation of its contribution to the CGIAR

The World Bank plays several funding roles in resource mobilization and allocation. It has been the largest single donor, has coordinated management of the MDTF, and has managed

its own allocation of funds in the interest of the CGIAR System as a whole. Over time the Bank has taken three different approaches to allocating its grant to the CGIAR and the Centers:

- Filling funding gaps (1972–93), sometimes called “balancing” and sometimes “donor of last resort.”
- Matching funds (1993–2004).
- Strategic allocation, applying a formula that includes Center need, potential, and performance (2004–present).

Filling funding gaps and matching funds are discussed in the Panel’s full Technical Report. Strategic allocation is described below.

In 2003, the first full year of Challenge Program funding and the major funding year for a project to rehabilitate germplasm collections,¹² the World Bank Operations Evaluation Department recommended that the Bank abandon the matching grant model.¹³ In 2004, the Bank introduced its strategic allocation system, which is partly similar—being formula-based and, to some degree, performance-based—to the allocation system for its own major concessionary fund (International Development Association).

Since 2004, the World Bank has divided its annual \$50 million contribution to the CGIAR into differently allocated segments

(figure 5.7). About half the funds pay for the CGIAR, special projects, and programs. The other half are allocated to the Centers by formula, and are divided into two tranches:

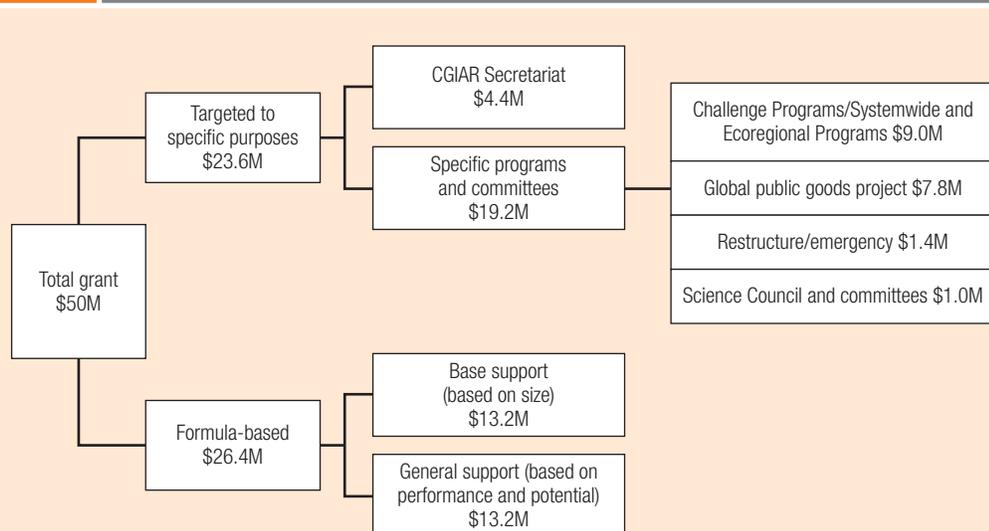
- Base support—unrestricted grants related to the size of each Center
- General support—funds allocated to each Center based on its score on 16 performance criteria.¹⁴

In 2007 about equal amounts were allocated as base support and general support. So, about one-quarter of the funds were linked directly to scores on the 16 performance criteria.

Among the performance criteria, four are explicitly related to results—achievement of outputs targets, most significant outcomes, and the quality of impacts monitoring, as assessed by the Science Council and were given a 35 percent weight. The other criteria covering quality and relevance of current research, institutional health, and financial health were given a 65 percent weight.¹⁵ In addition, a small weight was first given in 2007 to the “focus areas” identified in the stakeholder perception survey. The criterion with the largest weight is “solvency.”¹⁶

There are no restrictions on how the Centers may use the World Bank funds allocated by formula, either as base support or as general support.

Figure 5.7 Allocation of the World Bank Grant to the CGIAR 2007



Source: CGIAR Secretariat 2007c.

Notes

1. CGIAR Annual Reports, 1995 to 2007, The inflation rates are dollar-based annual rates for each Center. They are derived from three elements: the currency basket of a Center's expenditures (source: Centers); annual inflation rates (as measured by the consumer price index) on the currencies in the basket (source: IMF *International Financial Statistics*); and annual changes in exchange rates of each currency in the basket against the US dollar (source: IMF *International Financial Statistics*).
2. World Agroforestry Centre (2006).
3. World Agroforestry Centre (2006).
4. Prior to 2005 the World Bank managed a number of different funds targeted to the Centers. It instituted the MDTF partly to standardize the Trust Fund Administration Agreements by which it manages funds contributed by other donors to the Bank for disbursement to the CGIAR and the Centers. The CGIAR Secretariat obtained approval for an Initiating Brief for the Trust Fund that effectively established a global multidonor trust fund. Approval of a new standardized administrative agreement (MDTFAA) was obtained on September 1, 2005 (World Bank 2005, p. 2). On September 8, 2006, the Vice President of Sustainable Development and the Chair of CGIAR reported that the new arrangement was fully implemented. ("Update on the Implementation of the Management Action Plan.")
5. The World Bank plays a "limited trustee" role. Services include receiving donor funds, managing those funds, disbursing funds, providing periodic reports, and producing an externally audited financial statement for the MDTF every three years.
6. Each donor may attach any terms and conditions to its funds that it wishes, and the World Bank attaches those same terms and conditions to its agreement with the Center(s) that are to receive funds. A donor may specify that its funds are to be disbursed as unrestricted "core contributions" or that their use is to be restricted to a specific region, Center, program, or project. The donor may instruct the MDTF on different uses and conditions for different tranches of funds.
7. In addition to there being no compliance audit, there has not yet been a financial audit of the MDTF. The World Bank will conduct the first audit of the Fund in 2008. It will examine the period from inception (October 2005) to December 2007.
8. Consequently, the traditional 2006 EC contribution to the CGIAR of about €23–24 million was not forthcoming. In 2007 the EC concluded an intermediate arrangement with IFAD, and its CGIAR contribution that year was approximately twice the traditional annual amount, presumably to compensate for the lack of funding the previous year.
9. CGIAR Science Council (2005d).
10. CGIAR Secretariat (2008b).
11. Wadsworth (2007).
12. In 2003, the World Bank allocated \$24 million to general support, \$7 million to the Challenge Programs, \$17 million to rehabilitation of global public goods assets, \$1.7 million to Systemwide Programs, and \$1.4 million to special allocations (CGIAR 2003, p.15).
13. World Bank (2003), p. 37.
14. Two groups of indicators were used. One was indicators of results, including "achievement of acceptable output targets," "Science Council ratings of Center reports on research outcomes," "SC/SPIA rating of overall institutional impact assessment," and "SC/SPIA rating of two Center impact studies." The other was indicators of potential to perform, including "quality and relevance of current research," "institutional health," and "financial health."
15. Quality and relevance of current research (peer-reviewed publications per scientist other than ISI; peer-reviewed publications per scientist in journals listed in the ISI; and the percentage of publications coauthored with developing country partners); institutional health (governance score, board statement, culture of learning and change, and diversity); and financial health (solvency/reserves in days of expenditures, efficiency of operations [indirect cost ratio], and cash management on restricted operations).
16. The reduction in weight of the weight of "liquidity in days of expenditure" from 10 percent in 2006 to 0 percent in 2007, and the similar reduction of "solvency/reserves in days of expenditures" from 15 percent to 12 percent was decided in light of the 2006 reprogramming of \$6 million of the World Bank contribution from performance-based support to base support in response to the nondelivery of the EC contribution to the CGIAR in 2006.

Reaching out— partners in development

While there is evidence at the Centers of an important range of partnerships with measurable added value, on the whole, the Panel finds that the CGIAR and its Centers are falling far short of developing the strategic potential of partnerships

Partnerships are essential to the effectiveness and relevance of the CGIAR, to its mandate of poverty reduction, and to providing international public goods. Robust partnership strategies are needed at both the CGIAR System and Center levels that integrate the actions of different actors around major objectives with specified, measurable outcomes. While there is evidence at the Centers of an important range of partnerships with measurable added value, on the whole, the Panel finds that the CGIAR and its Centers are falling far short of developing the strategic potential of partnerships.

The Panel found that the Centers have formed many sound partnerships but that most are one-off and short-term. The recent External Program and Management Reviews (EPMRs) of all 15 CGIAR Centers refer consistently to the Centers' lack of appropriate tools to engage in and manage partnerships. The reviews also point frequently to partnerships that provide limited value to the Centers or involve work more appropriately done by others. The result is a host of ad hoc partnership arrangements that lack strategic purpose. Part of the problem is financial. But another at least equal part is the absence of ambitious strategies with embedded partnerships that promise major development breakthroughs and that attract financing enthusiasm.

The 2008 Independent Review Panel survey of informed stakeholders confirms these conclusions, as does the CGIAR Stakeholder Perceptions Survey of 2006. Consultations with representatives of national agricultural research systems (NARS) point to the need for new approaches that differentiate more sharply between advanced and less advanced NARS and that recognize the achievements

of NARS more explicitly when they partner with Centers.

At the System level, partnership committees with membership in the Executive Council were intended to serve as the basic architecture for building and strengthening partnerships. The approach failed for nongovernmental organizations, and the initiative was suspended. It is doubtful that a committee approach could successfully represent the diversity of nongovernmental organizations. The Private Sector Committee has proved more durable, but evidence of progress toward measurable benefits remains elusive. From the private sector perspective, the absence of an empowered entry point into the CGIAR is a constraint to interaction.

The objective for the CGIAR System is to act on the basis of comparative advantage and to add value to outcomes. The problem for the CGIAR is that its comparative advantage has become opaque. At all levels—global, regional, national, and local—there are many alternative sources of supply for the goods and services that the CGIAR alone once provided. Recently, there have been a growing number of calls to bring alignment to the international agricultural architecture. This presents an opportunity for the CGIAR to define its comparative advantage, formulate in time-bound targets what it could contribute to a global effort, and indicate the partnership division of labor requirements for the production, distribution, adaptation, and application of international public goods.

At the regional level, the new efforts under way to strengthen regional research and development capacities in agriculture particularly in Africa where these are most urgently required, offer new potential for partnership. They also

The CGIAR cannot produce and deliver alone the international public goods that are the core of its mandate

require new strategic understandings on specialization, subsidiarity, and division of labor. As regional bodies such as the Association for Strengthening Agricultural Research in East and Central Africa, the West and Central African Council for Agricultural Research and Development, and the Forum for Agricultural Research in Africa in Africa, and the Asia-Pacific Association of Agricultural Research Institutes in Asia expand and strengthen, the role of the CGIAR will doubtless need to change. This should be envisaged, planned, and integrated into specific partnership agreements with measurable milestones. Here again, the need is for a strategic framework with partnerships as an integral component.

At the national level, the neglect of capacity and institution building of the past two decades will need to be reversed if a global effort is to succeed and be sustained. To what extent should this be a continuing role for the CGIAR and to what extent for other regional bodies or other international organizations or the many strong professional organizations of civil society? To reignite the kind of vision for the CGIAR-NARS partnership that made the green revolution of the 1970s possible will require new and determined attention to and financing for capacity and institution building, especially for Africa.

Why invest in partnerships?

The CGIAR invests in both internal and external consultative group partnerships for many reasons.

First, the CGIAR cannot produce and deliver alone the international public goods that are the core of its mandate. While the Centers can provide the core components of international public goods delivery systems, they need to collaborate with partners in the private, public, civil society, and international sectors to provide the complementary components required for development impact (see chapter 3). The CGIAR can achieve development impacts where they matter—for farmers, families, and societies—only by being part of an international public goods delivery system. At one end

of that system, the CGIAR needs effective linkages to other international science centers and private research laboratories to remain at the leading edge of science and technology. At the other end, it needs solid linkages with national adaptive and delivery agents, principally NARS and nongovernmental organizations.

Second, agricultural research has become more complex as a result of scientific and technological advances, social and economic developments, and environmental changes. Traditional disciplinary approaches to agricultural research are giving way to multidisciplinary and transdisciplinary approaches to deal with this complexity. No single Center possesses the expertise and infrastructure to single-handedly address such change. Centers must collaborate with each other and with other international entities to establish multidisciplinary teams.

Third, considerably higher costs are associated with new lines of research. The CGIAR and its Centers need to forge partnerships in order to share resources such as laboratory equipment, information and communication technology infrastructure, administrative and finance capacities, and technical expertise. Centers can exploit economies of scale if they share resources through structured partnerships. In areas such as bioinformatics, some Centers are unlikely to possess adequate resources to invest in state-of-the-art equipment and laboratories.

Fourth, the CGIAR needs partnerships with the private sector and advanced research institutes in order to access proprietary scientific information and technologies.

Recent System-level evaluations (the Third System Review and the World Bank Operation Evaluation Department's meta-evaluation) and reform efforts (the 2001 Change Design and Management Team and the 2005 Sub-Saharan Africa Task Force) found weaknesses in CGIAR partnerships (such as poorly developed linkages with nongovernmental organizations and the private sector, insufficient attention to capacity-building with NARS, and weak or absent strategy). The CGIAR's own 2006 Stakeholder Perceptions Survey reported serious difficulties in partnerships (box 6.1).

The cosponsors: opportunities for improved alignment and division of labor among the main multilateral agriculture organizations

Along with the CGIAR, the main institutions that make up the international public architecture for agricultural development are the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the International Fund for Agricultural Development (IFAD), the World Bank, and the regional banks. FAO, IFAD, and the World Bank are cosponsors of the CGIAR, along with the United Nations Development Programme (UNDP).

Today there are major opportunities for improved alignment and division of labor among the main multilateral organizations with mandates in agriculture and rural development. The Independent Review Panel survey of informed stakeholders found that 73 percent of respondents considered these partnerships with cosponsors to be important or very important but that only 28 percent thought that they were “playing their role effectively.” Among respondent groups, however, there are differing assessments of the importance and value of the existing partnerships with the FAO, IFAD, and UNDP as cosponsors. At the same time, all groups agree (79 percent) that the CGIAR should make better use of cosponsors to influence broad international policies in agriculture and development.

The CGIAR System has undervalued its role in policy dialogue. The policy-oriented Centers such as CIFOR, Bioversity, and IFPRI (and other institutions in their area of expertise) have actively participated in international policy arenas. But the 15 Centers do not have a single entry point that facilitates dialogue or joint action on larger policy issues to reduce transactions cost for partner institutions. The lack of an integrative voice was seen in the absence of systemwide preparations in advance of the Bali conference on climate change and the Rome conference on food security. There is no collective policy and strategy to guide international interactions.

There are obvious complementarities between the FAO as an organization with convening power to frame international and regional issues and create policy and the CGIAR as the most successful international producer of applied agriculture technology in history. There are similar complementarities between the IFAD mandate to support poor landholders and the UNDP’s coordination and policy mandate role. Creating institutional platforms and a legal identity for the CGIAR will require systemwide reform—reliance on individual institutional reforms now under way at the CGIAR, FAO, IFAD, and WFP cannot bridge the gaps.

The Global Forum for Agricultural Research: facilitating CGIAR engagement with stakeholders

In October 1996, stakeholders of agricultural research for development, together with a group of donors and four facilitating agencies, including the CGIAR, established the Global Forum for Agricultural Research (GFAR) as

Box 6.1

Some key findings of the CGIAR’s 2006 Stakeholder Perceptions Survey

- Civil society organizations are among the most critical of CGIAR’s stakeholders and had the greatest influence on CGIAR’s overall reputation, including with CGIAR Members.
 - Coordination of activities across Centers and the quality of partnerships were two perceived weakness of the CGIAR. Other concerns included excessive bureaucracy, lack of funding, and relevance.
 - Survey respondents indicated the two areas of the CGIAR most in need of improvement were collaboration with external organizations and research collaboration with partners.
 - Specific to Centers, good partnership ratings ranged from 43.2 percent to 66.6 percent.
- On average across all Centers:
- Only 51 percent of respondents agreed that Centers share credit for the success of projects with the partners involved.
 - Only 42 percent agreed that Centers do not duplicate the efforts of other research institutions.
 - Only 40 percent agreed that Centers fully and meaningfully involve partners in important decisionmaking.
 - Only 45 percent of respondents agreed that Centers serve local needs well.

Source: GlobeScan 2006a,b.

This Panel concurs that the Global Forum for Agricultural Research has a central role to play in facilitating CGIAR engagement with the breadth of stakeholders in agricultural research for development and that the CGIAR should support the strengthening of GFAR

a multistakeholder forum to promote partnership, dialogue, and action on agricultural research for development. Stakeholders include NARS from industrial and developing countries, the CGIAR and its Centers, other international agricultural research centers, farmer organizations, nongovernmental organizations, the private sector, and donor and development agencies.¹

The Third System Review of the CGIAR in 1998 recognized the potential of GFAR for enhancing the CGIAR's work and partnerships.² Eight years later, a GFAR-initiated review found that GFAR's visibility in the global community remained low³ and that ties between GFAR and the CGIAR had weakened since the CGIAR's financial support for GFAR ended in 2003.⁴

More recently, GFAR has worked to increase its visibility and enhance its attractiveness as a forum for stakeholder consultation. Despite GFAR's weaknesses, it continues to be the obvious choice for facilitating cooperation in agricultural research for development. Working Group 2 of the CGIAR's Change Management process indicated that it "considers GFAR to be the most appropriate institutional mechanism to organize this process" even though GFAR has not been effective so far and noted that the active support of the CGIAR and other partners is vital for achieving a strong GFAR.⁵

This Panel concurs that GFAR has a central role to play in facilitating CGIAR engagement with the breadth of stakeholders in agricultural research for development and that the CGIAR should support the strengthening of GFAR.

The donors: broad agreement on what is working and what is not

Organisation for Economic Co-operation and Development (OECD) donors provide 75 percent of CGIAR's financing. Current trends in OECD donor financing are toward fragmentation of effort and increasing cost-inefficiencies and reduction of impact potential (these factors are examined in detail in the full technical report of the Panel's evaluation; see also chapter

5). The main factors for concern in donor funding for the CGIAR are these:

- A steady rise in uncoordinated restricted financing linked to short-term deliverables.
- Unevenness in how overhead costs are calculated and provided for, resulting in inconsistent and inadequate cost recovery and a free-rider problem.
- A rise in the number of small projects in Center portfolios, which boosts administrative costs and, when not linked to higher order objectives, distracts from Center priorities.
- A rise in the number of individual donor evaluations.
- More rapid growth in nonmember than Member financing, reducing the collective merits of the partnership.
- Neglect of the complementary investments required for the CGIAR Centers to function effectively in a high-impact international public goods delivery system.

Donors are aware of these negative consequences. A background paper for a Member Coordination Forum at the 2006 Annual General Meeting focusing on harmonization of financing and evaluation reported on responses from 17 donors on restrictions in their financing policies and practices. Twelve donors reported that their financing was restricted to projects; only two indicated that their financing restrictions were linked to CGIAR priorities (figure 6.1). About a quarter of donors that responded indicated that they did not provide Centers with full cost recovery on their financing.⁶

Interviews with some donors indicated agreement on the need for good donorship principles: financing intentions should be stated early and clearly; funding should be broadly stable and predictable; multiyear financing is preferable; donors should hold organizations principally accountable for development impacts; and the Paris Declaration principles should apply. Several donors also volunteered that their national political systems impeded them from applying those

Figure 6.1 CGIAR donors self-report of restrictions on financing



principles in the CGIAR. Most, but not all, were critical (some even self-critical) of donors seeking ownership or attribution of project benefits and of using the CGIAR Centers to promote national foreign policy objectives.

The Panel discovered substantial agreement in assessments of what is right and what is wrong with the CGIAR and on the need for change. The main areas of agreement were as follows:

- *The CGIAR is punching below its weight.* CGIAR System performance has been declining in relevance and impact in a field that has become crowded with new actors, from strong NARS and research universities in developing countries to multinational corporations. Yet, the CGIAR has an important role as an independent international agriculture research system in tackling global challenges.
- *The CGIAR is an organizational paradox.* Donors tend to portray the CGIAR as a paradox—an ultramodern, 21st century organization established on the basis of networks and alliances, with a vista from the global to the local, and committed to partnerships, yet rigid, slow, and indecisive.
- *Strategy and results are unclear.* Most donors voiced concern that the

CGIAR lacks a strategy and clear objective indicators. In interviews some donors placed a stronger emphasis on conducting good science and others on demonstrating poverty reduction benefits. All agreed, however, on the importance of the link between the two and that their authorizing environments require more persuasive demonstration of links to observable development results or—“part of a collective effort to secure” such results.

- *Fundamental changes in governance are needed.* Change attempts have assumed that change can be made incrementally and at the margin; the general view among donors is that these efforts have been mainly unsuccessful and that major structural reform is called for. To paraphrase one donor: “This review and change management process can’t be like past efforts. The CGIAR is at risk now as never before. Change is needed and it must be deep and serious.”
- *Governance and decisionmaking capacities are the keys.* There is agreement among donors interviewed that CGIAR governance is weaker than that of other multilateral organizations and that, while decisionmaking might have improved somewhat with the establishment of the Executive Council, the CGIAR’s consensus model of decisionmaking is not adequate for a network enterprise of this importance, scale, and complexity

Inter-Center partnerships: important, but lacking in effectiveness

More than half of respondents to the 2008 Independent Review Panel survey of informed stakeholders considered Center to Center partnerships as “very important” for the delivery of the CGIAR mandate and programs, but fewer than a quarter rated them as “effective.” EPMRs indicate that relationships

Interviews with some donors indicated agreement on the need for good donorship principles: funding should be broadly stable; donors should hold organizations accountable for development impacts; and the Paris Declaration principles should apply

More than half of respondents to the Independent Review Panel survey of informed stakeholders considered Center to Center partnerships as “very important” for the delivery of the CGIAR mandate, but fewer than a quarter rated them as “effective”

between the Centers are generally good and that Directors General viewed the other Centers positively, although areas of tension between certain Centers are also reported. Center to Center partnerships tend to be under-resourced, with the exception of the Systemwide and Ecoregional Programs.

Center to Center relationships are generally organized around projects, most of short duration, limiting collaborations to one-off efforts. There are, however, numerous examples of Centers trying to work around such constraints to forge longer, more systematic collaboration (World Agroforestry and ILRI share information and communication technology procurement; CIFOR, IWMI, and WorldFish share some cooperative services; the Africa Rice Centre and IITA have integrated many of their administration functions) and to work out mutually agreeable divisions of labor (IITA and CIMMYT collaborate on maize research; IITA focuses on lowlands and CIMMYT works in mid- to high altitude).⁷

Advanced research institutes: need for more joint programs

EPMRs suggest wide variability in individual Centers’ collaboration and relationships with advanced research institutes. The eight reviews that discuss Center partnerships with advanced research institutes indicate that collaboration is concentrated in such upstream work as molecular biology, genetic engineering, genomics, and bioinformatics. CIMMYT’s EPMR views partnering with ARIs as providing it with “the ability to participate in cutting edge research in a wide range of subject areas . . . eliminating or reducing CIMMYT’s need to make the investments in expertise or infrastructure required to be competitive.”⁸ The Africa Rice Centre’s review commended the Center for its longstanding relationships with advanced research institutes, but notes the need for a specific budget to enhance such collaborations.⁹

That finding of the Africa Rice Centre review is echoed in responses to the Independent Review Panel survey of informed stakeholders

about what should be done to improve partnerships between Centers and advanced research institutes: 75 percent of respondents indicated that they should be strengthened by funding joint projects and programs.¹⁰

National agricultural research systems: key partnerships but in need of improvement

The relationship between the CGIAR and NARS has changed considerably over 35 years. In some regions (for example, Asia) and some countries of Sub-Saharan Africa (for example, Kenya, Nigeria, and South Africa), the Centers have changed from mentors to collaborators or partners with NARS. A significant portion of Centers’ scientific publications are produced in collaboration with their developing country partners (45 percent on average across all Centers, ranging from 29 percent for Africa Rice Centre to 66 percent for ICARDA), according to data collected by the CGIAR’s Performance Measurement System (see chapter 3). Where NARS are still relatively weak, the CGIAR continues to work on institutional capacity building, although with severely constrained resources. On the whole, the CGIAR has co-evolved well with most NARS around the world.

The number of developing country Members of the CGIAR increased greatly in the 1990s, and today, 25 of 64 Members are developing countries. Many are represented in CGIAR governance by their NARS. But participation has been uneven, and the voices of developing country partners in CGIAR governance have been muted. As Working Group 2 of the Change Management process summarized the situation: “Developing country participation in [annual general meetings] and other governance bodies has been weak, and their voices are not strongly heard, in part because they have not been able to follow the complex decisionmaking processes in the CGIAR and prepare adequately to participate and influence the decisions. Those that participate tend to represent the larger and more powerful developing countries.”¹¹

Forums for CGIAR engagement with NARS include regional and subregional organizations, such as the Asia-Pacific Association of Agricultural Research Institutions, the Forum for the Americas on Agricultural Research and Technology Development, the Forum on Agricultural Research in Africa, and GFAR. Engagement has been consultative, for the most part.

NARS remain key partners with the Centers. IRRI's 2004 EPMP shows that the Center had bilateral arrangements with 16 rice-growing countries in Asia. Each country had a staff member at IRRI as liaison. The review concluded that this arrangement has been very successful in providing a single point of scientific contact with IRRI headquarters. NARS, particularly in Asia, collaborate with IRRI in upstream areas of research such as genomics and bioinformatics.¹² WorldFish's 2007 EPMP also found that NARS work with the Center mostly in upstream areas of research and that NARS represent 74 percent of the Center's memoranda of understanding and letters of agreement.¹³ More than half of Bioversity's and ICARDA's partners at the time of their most recent EPMPs (2004 and 2007) were NARS. Most Centers report NARS involvement in the development of medium-term plans. A Center-commissioned review of Africa Rice Centre partnerships in 2005 concluded that they were growing in number and intensity. In 2006, the Africa Rice Centre was awarded the United Nations South-South Triangular Partnership award, the first of such awards in the CGIAR. That same year, however, the CGIAR Stakeholder Perceptions Survey reported that only 43 percent of Africa Rice Centre partners agreed that it performed well on partnerships attributes—the lowest rating of all 15 Centers.¹⁴

The Association for Strengthening Agricultural Research in Eastern and Central Africa and the West and Central African Council for Agricultural Research and Development assign priority to CGIAR involvement in NARS capacity building in post-conflict states. At least one EPMP, however, has questioned Centers' involvement in post-conflict situations as

“by nature country-specific with low research content. The inputs of Centers into such areas should be strategic and brief. . . .”¹⁵

The relations between Centers and NARS are not all positive, however. Nearly all respondents (90 percent) in the Independent Review Panel survey of informed stakeholders consider partnerships with NARS as important or very important. But only 45 percent of respondents believe that such partnerships are effective or very effective. Some 32 percent find them neither effective nor ineffective, and 23 percent believe that CGIAR and Centers' partnerships with NARS are marginally or completely ineffective.

In more than one Center, relationships with NARS are tense, at best. EPMPs and Panel interviews with NARS indicate that interactions are too often characterized by competition rather than collaboration. More than one NARS representative complained of patronizing treatment of the NARS by the CGIAR. Competition for funding is an undercurrent in tensions between Centers and their NARS partners. In the Independent Review Panel survey, developing country respondents articulated a desire for Centers to devolve relevant activities to strong NARS and for NARS to play a greater role in priority setting.

The Panel believes that the Centers need to address the tension with the NARS. Two major funders told the Panel that they had significantly curtailed new funding to the CGIAR Centers because of this tension. One said that the tension signals that the CGIAR is not the best channel for building sustainable capacity in agriculture research in developing countries.

Partnerships for capacity and institution building: much more needs to be done by all participants

Preliminary results of a United Nations Educational, Scientific and Cultural Organization global study of scientific and research capacities, including in agriculture, depict a severe and accelerating brain drain from developing

Nearly all respondents in the Independent Review Panel's survey of informed stakeholders consider partnerships with NARS as important. But only 45 percent believe that such partnerships are effective

The Centers' expenditures on strengthening NARS have not changed appreciably as a percentage of total expenditures since the early 1990s

to developed countries that is especially pronounced in the life sciences, including agriculture. Sub-Saharan Africa overall (not just in agriculture) has 83 scientists per 1 million people. By comparison, Asia has 785 scientists per 1 million people and OECD countries have 1,100 per 1 million. Even in relatively strong regions, distribution is highly skewed. Brazil, for example, accounts for half the agricultural research expenditure in Latin America. About half the countries in Sub-Saharan Africa spent less in 2000 on agricultural research and development than in 1991.¹⁶

These findings are disturbing for the work and mission of the CGIAR and, more broadly, for Africa, where major productivity gains are urgently needed. The success of the green revolution in Asia in the 1970s was due to a strong CGIAR and the massive complementary investments in support of national agriculture research and development institutions that could produce agricultural development strategies; receive, adapt, and apply new technologies; and establish effective field delivery systems.

Some initiatives are under way to address this problem, but they seem worryingly modest given the magnitude of the challenge. The Bill & Melinda Gates Foundation and the Rockefeller Foundation are supporting a partnership of 12 African universities to offer joint doctorates in agricultural subjects. They have also worked with IFPRI to establish a program of educational support for female agricultural scientists in Africa. Within the CGIAR, there have been discussions on promoting a world agricultural university, but there is some disagreement about whether this is an area of comparative advantage. ICRISAT and IFPRI, with support from the Gates Foundation, have also developed the Global Open Food and Agriculture University, now called the Agricultural Open Curriculum and Learning Initiative. The Panel did not evaluate to what extent this furnishes a foundation for a cross-CGIAR strategic initiative, including perhaps a major donor partnership linking in universities in industrial countries, but it deserves serious examination.

The Centers' expenditures on strengthening NARS have not changed appreciably as a percentage of total expenditures since the early 1990s (21.7 percent in 1992, 22.9 percent in 2001, and 21.4 percent in 2007), even in light of reformulated system priorities and IFPRI's absorption of a downsized International Service for National Agricultural Research. Many recent EPMRs also point to a continuing commitment by Centers to training and capacity building activities, despite funding limitations.

The interim Science Council commissioned an independent evaluation of training in the CGIAR, which was completed in 2006. Among its findings and conclusions:

- NARS have become more differentiated, with some becoming equal partner to the CGIAR Centers.
- The CGIAR's investment in training and learning continues to be high, with about a quarter of researchers' time dedicated to training.
- The panel found "strong and consistent evidence" of the effectiveness of CGIAR investments in training and learning.¹⁷
- With the rising predominance of project funding, Centers are decentralizing training to researchers and reducing the role of centralized training units, to the detriment of institutional strengthening of NARS and the Centers' abilities to fully exploit past investments.
- The CGIAR needs to collaborate with institutions with development-oriented mandates to address broader NARS' capacity needs. Centers should not cover resource shortages in NARS out of project funds that cannot be sustained.

Partnerships with nongovernmental organizations: mutuality of values a driving force

Nongovernmental organizations have become a vital actor for the delivery of international

public goods, especially in weak states with poorly developed public institutions. In many countries, NGOs exert a strong influence in the agriculture sector.

As developing country governments and official aid agencies moved away from agriculture and rural development in the 1980s, international NGOs assumed an increasingly prominent position. Relief-oriented NGOs such as Oxfam, CARE International, Catholic Relief Services, and World Vision extended their activities beyond relief operations to address agricultural productivity and food security. As the global environmental movement of the 1980s and 1990s took root, environmental NGOs shifted from pure conservation to sustainable agriculture and “sustainable rural livelihoods.” In the last two decades, several of these NGOs have created a worldwide network of country offices and field operations. They also demonstrate an increasing capacity to attract the highest levels of professional and technical expertise.

Formal engagement between the CGIAR System and NGOs dates from the Lucerne Ministerial Meeting of 1995, when the CGIAR decided to establish an NGO Committee to serve as a mechanism for interactions between the CGIAR and NGOs and as a springboard to new partnerships. The NGO Committee adopted as its main objectives strengthening a people-centered approach to sustainable agriculture research and development and contributing to the mutual understanding between the NGOs, the CGIAR, and farmer, fisheries, and forestry organizations.¹⁸

Almost from the outset, the relationship ran into difficulties. The NGO Committee felt that its recommendations and contributions were not being treated seriously, while others viewed its positions on matters such as biotechnology and CGIAR collaboration with the private sector as extreme and unwelcome. Matters came to a head in 2002 when the NGO Committee suspended its membership in the CGIAR. Over the past four years, steps have been taken to recast a systemwide CGIAR-NGO relationship. The 2006 Annual General Meeting approved a policy paper on

engagement with NGOs indicating that partnerships can be established only where there is a strong mutuality of values and interests.¹⁹

A Center collaboration survey by the Science Council in 2006 found evidence of numerous active partnerships between Centers and NGOs. In total, the Centers reported 3,395 partnerships, although this number may count the same organization more than once as Centers often collaborate with the same organizations multiple times. The largest number of reported partnerships was with NARS (30 percent), followed by developing country NGOs (12 percent). Only 4 percent of reported partnerships were with developed country NGOs. Almost no multiple partnerships were reported; 87 percent were partnerships between one Center and one organization.

In the Independent Review Panel survey of informed stakeholders, 58.7 percent of respondents said that CGIAR and Centers’ partnerships with NGOs were important or very important, although only 20 percent considered them effective.

There have been no specific evaluations of the effectiveness of Center-NGO partnerships, however, and EPMRs generally give them cursory treatment. An exception was the 2007 EPMR of WorldFish, which examined the performance and value of the Center’s partnerships with NGOs. It found that NGOs and NARS constitute the largest partnership categories of WorldFish and that more than 60 percent of its partners in Asia are NGOs. It added specifically that most of WorldFish’s work in transforming outputs to outcomes and impacts has been achieved with NGOs.

Partnerships with the private sector: multiple obstacles

The 1995 Special Ministerial Meeting in Lucerne, Switzerland, launched a formal systemwide partnership arrangement with the private sector. The Private Sector Committee was established and accorded membership on the CGIAR’s Executive Council.²⁰ There has been little progress at the System level in establishing partnerships through the Lucerne mechanism.

There have been no specific evaluations of the effectiveness of Center-NGO partnerships

At the Center level, partnerships with the private sector constitute a small share of CGIAR collaborations or structured relationships

The chair of the Private Sector Committee reports continuing frustration and concern that the CGIAR System still lacks clarity on what it wants from the private sector. A principal barrier continues to be the absence of a System entry point: the private sector claims that it cannot form scientific research and development partnerships with 15 Centers.

At the Center level, partnerships with the private sector constitute a small share of CGIAR collaborations or structured relationships. The main ones are concentrated in four of the larger or older commodity centers: CIAT, CIMMYT, ICRISAT, and IRRI. According to a survey of CGIAR collaborations published by the Science Council in March 2006, only these four Centers considered the private sector a highly relevant collaborator.

Center directors and senior management suggest that the main reasons for limited partnerships with the private sector include:

- Difficulty securing funding for partnerships with the private sector, with donors hesitant to fund Center linkages with private companies.
- Concern in some quarters (including Center board members) that partnerships with the private sector could divert the CGIAR from its core business of producing global public goods.
- Fear that NGO opposition could produce bad publicity in the international press, resulting in loss of reputation. (Some NGOs are convinced that large private sector corporations are interested in public-private partnerships in developing countries merely as a means to opening regulatory doors to their transgenic products.)
- Weak CGIAR and Center capacities to manage the intellectual property rights of private companies and related technology licensing agreements.
- Political correctness fears, driven by a lack of resolve.

A recent IFPRI study suggests that yet another obstacle is the absence of examples of successful public-private partnerships in agricultural research.²¹ The study also notes that

the private sector can be discouraged by the slow pace of decisionmaking and action in the public sector.

Intellectual property rights, however, seem to pose the greatest obstacle. Not enough progress has been made in the decade since the Third System Review recommended highest priority attention to a clear policy on intellectual property and investment in systemwide capacity to manage all aspects of intellectual property rights pertaining to agriculture. Some interviewees, including serving Directors General, pointed to the complexity and divisiveness of intellectual property rights as a reason for the continuing lag in partnering with the private sector. Yet many organizations whose mandates are poverty reduction and the production and delivery of international public goods have resolved these issues, including the World Health Organization, the Global Alliance for Vaccines and Immunization, and the African Agricultural Technology Foundation. The CGIAR can do the same.

Intellectual property management is essential for partnerships

There are more than a dozen international treaties and protocols that govern the protection of intellectual property in such forms as inventions, knowledge, and genetic material. Of these regimes, the Convention on Biological Diversity (CBD), Trade-Related Aspects of Intellectual Property Rights (TRIPS), and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) are the most recent and comprehensive. Along with the International Convention for the Protection of New Varieties of Plants (UPOV), they directly impinge on public agricultural research and the production of international public goods in general.

International agreements on intellectual property have created new rules that the Centers have to consider in their operations

How they affect the work of CGIAR Centers depends largely on national interpretation

of provisions of the regimes and on how the agreements are implemented through domestic legislation. On the whole, agreements govern the production, use, and control of intellectual property and genetic resources. They have created new rules that the Centers have to consider in their operations. Centers' host countries have also laid out national legislation and regulations for intellectual property protection, access to genetic resources, respect for and protection of traditional and indigenous knowledge, and a wide range of other aspects of the governance of research and technological innovation. Centers have a legal obligation to follow national procedures, regulations, and laws.

The CGIAR and its Centers' capacity to handle issues of intellectual property and governance of genetic resources affects the status of collections in genebanks, exchange of germplasm, and the ability of the Centers to collaborate with NARS and farmers. And it influences the kinds of partnerships they can establish with the private sector and advanced research institutes. The CGIAR cannot ignore or casually handle issues of intellectual property protection. They need informed strategies to adhere to the CBD, TRIPS, ITPGRFA, and related national laws. Some of the key issues that the CGIAR and Centers need to consider are:

- Transaction costs of accessing genetic material from farmers and communities are likely to rise as developing countries enact legislation and regulations to implement Articles 8j and 15 of the CBD. Centers will require legal expertise and guidelines to negotiate with communities and farmers for access to locally improved or enhanced germplasm. Some Centers work with communities and appropriate and use local people's knowledge and information. They are required now to abide by Article 8j of the CBD. The extent to which the CGIAR and Centers in particular follow and implement provisions of the CBD will determine whether and how they forge

partnerships with civil society and community-based organizations.

- The germplasm collections held by the Centers are now regulated by the ITPGRFA and the CBD. Centers cannot privatize them or make them freely available to private sector or other institutions that will privatize them. This consideration will influence how Centers and the CGIAR interact with the private sector. Centers' partnerships with the private sector will need to be managed so that provisions of the treaties are not ignored or violated.
- The three treaties or regimes are complex and under continuous negotiations, giving rise to uncertainty in implementation and enforcement at national and institutional levels.
- The CGIAR and the Centers' work also relates to other forms of intellectual property rights such as copyright, trademarks, and trade secrets. The Centers' work depends on access to and use of software and publications, and the Centers also generate intellectual property that needs to be appropriately protected. For example, ILRI has a patent filed in the United States on an animal vaccine against theileria infection. CIAT has plant variety protection certificates filed in its name by Papalotla in Australia, Nicaragua, South Africa, and the United States. All of the countries in which the Centers publish are members of the Berne Convention, so copyright is an important part of the Centers' intellectual property.

The CGIAR and Centers address issues of intellectual property protection and governance of genetic resources at both the System and the Center levels. At the System level, the Genetic Resources Policy Committee (GRPC) and the Central Advisory Service for Intellectual Property (CAS-IP) are the main institutional arrangements for addressing

The CGIAR cannot ignore or casually handle issues of intellectual property protection

There is a general view among most interviewees that Centers need to do more to effectively deal with issues of intellectual property protection at the Center level. The majority of the Centers do not have in-house staff responsible for intellectual property issues and tend to deal with intellectual property issues on an ad hoc basis

intellectual property and genetic resources policy and legal issues.

The main role of the GRPC, established in 1994, is to advise the CGIAR on policy and legal issues pertaining to genetic resources. It is expected to assist the CGIAR Chair in providing overall policy guidance and leadership on how the CGIAR handles issues of genetic resources. A 2002 external review of the GRPC concluded that it had fulfilled its mandate in “a very satisfactory manner” and that “there is need to retain such an independent mechanism within the CGIAR.” Most Centers view the GRPC as an authoritative source of policy documents on genetic resources issues. It is credited with enhancing the Centers’ awareness of policy issues. GRPC was instrumental in guiding the CGIAR’s participation in the negotiation of the ITPGFA. According to one interviewee, “if such a committee had not been established in the 1990s, the CGIAR would now be in disorder insofar as handling of complex legal and policy issues on genetic material.”

The CAS-IP, established in 1999, focuses largely on supporting the CGIAR to effectively manage intellectual property protection. It provides Centers with advice on such issues as material transfer agreements, stewardship of intellectual property and technology transfer, and proprietary technologies.

Centers need to do more to effectively deal with intellectual property protection

The Centers are experimenting with a wide range of institutional arrangements and procedures to handle issues of intellectual property protection and genetic resources policy. All Centers have Intellectual Property Policy Statements. Six Centers have established in-house units or offices on intellectual property management (Bioversity, CIAT, CIMMYT, ICRISAT, ILRI, and IRRI). All Centers have focal points and intellectual property committees. However, Centers have different capacities. Some Centers are more advanced, with relatively developed regimes, high levels of awareness, and staff dealing with

intellectual property issues. There is a general view among most interviewees that Centers need to do more to effectively deal with issues of intellectual property protection at the Center level. The majority of the Centers do not have in-house staff responsible for intellectual property issues and tend to deal with intellectual property issues on an ad hoc basis, often reacting to crisis. A study conducted by CAS-IP in June 2004 concluded that intellectual property management practice is uneven among Centers. “A few Centers have been able to establish stable [intellectual property] Management Units; a few more are in the process of establishing units, while many Centers do their [intellectual property] management in an ad hoc manner backed by [intellectual property] committees that meet once a year or less.”²²

Center scientists are gaining an understanding of why intellectual property management is crucial to their operations. Few, however, understand international and national laws on intellectual property. A 2006 Science Council report noted that: “Much effort has been made by the System-wide Genetic Resources Program (SGRP), CAS-IP and others to make sure that Center staff have a high level of understanding regarding the ITPGFA. . . . So, while it is not surprising that Center staff feel that their level of awareness of TRIPs or IP/IPR-related law is low, it is frustrating that the CBD and the International Treaty are not well-known. In addition, when this lack of awareness of these treaties is coupled with the fact that much of the 3rd party materials that the Centers use is information and knowledge associated with genetic resources or the use of genetic resources, we can see that more effort needs to be put into increasing awareness and understanding of these international agreements.”²³

Most of the Centers do not have annual budgets dedicated to intellectual property management, though some have units and committees. According to the Science Council study, intellectual property “focal points have had to use funding from other projects’ to support attendance at intellectual property

strategy meetings.²⁴ Most of the Centers spend only \$10,000–\$15,000 a year, most of it on the work of CAS-IP.

Emerging issues

The CGIAR is working to improve its management of intellectual property protection and related issues of genetic resources, but it is insufficient. Centers and the CGIAR System are becoming more aware of the importance of intellectual property management, and CAS-IP is supporting the Centers in their efforts. The GRPC has been instrumental in helping the Centers and the CGIAR to better understand genetic resources policy and legal issues. It played a major role in guiding the CGIAR to participate in the formation of the ITPGRFA and some of the CBD negotiations.

The GRPC and the CAS-IP and the Centers will need to do more to comply with provisions of the treaties. Some actions to be considered:

- The CGIAR needs to commission or undertake a comprehensive study of transaction costs arising from the obligations created by the three regimes (Article 27 of TRIPS and Articles 8j and 15 of the CBD).
- The CGIAR and Centers need to review and learn more about national laws and regulations to implement the treaties and agreements. They need to monitor national processes for access to genetic resources, sharing of benefits arising from access and use of the resources, creation of specialized systems, and other developments in national intellectual property management. Centers need to build capacity to manage third-party intellectual property and should have a better understanding of liabilities associated with infringement or noncompliance.
- The CGIAR and the Centers, through CAS-IP and the GPRC, and through participation of individual Centers' representatives should participate

more in Conference of Parties to the CBD, particularly in the ongoing negotiations to develop guidelines on access to genetic resources and sharing of benefits from the use of these resources.

- The CGIAR and Centers, though having no status in the World Trade Organization, should establish a mechanism for monitoring developments in the organization, particularly future negotiations on Article 27 of TRIPS. CGIAR needs capacity to procure or generate evidence-based options on how best to address issues emerging with the implementation of the TRIPS.
- Center scientists, leaders, and managers must increase their awareness of the obligations raised by the regimes, through workshops and guidance from GRPC and CAS-IP. Center leadership should be aware of the obligations and ensure that Centers are responsive and not reactionary to developments in intellectual property protection pertaining to genetic resources and agricultural research.

Some general lessons on global public partnerships

On global public partnerships, the most extensive study to date has been the World Bank's independent evaluation of its global partnerships.²⁵ It involved close examination of 26 global partnership programs, including its partnership with the CGIAR. While the recommendations are directed to the World Bank, the broader lessons and their implications apply as well to the CGIAR:

- *A global strategy is an essential precondition to partnerships.* This must begin with an understanding of alternative sources of supply and a clear determination of comparative advantage. It would need to take full account of changes in the international architecture for the production and delivery

Most of the Centers do not have annual budgets dedicated to intellectual property management, though some have units and committees

Partnerships work well when they are purposive and situated within explicit results-based frameworks

of public goods and the comparative advantage of different institutions.

- *Financing requirements for partnerships need to be tightly linked to programs and program priorities, and the means-end requirements must be clearly presented.* This requires identifying underfunded long-term global public goods programs that benefit the poor and indicating the financing required for their production, delivery, adaptation, and effective use. There is little point in proposing programs to bring about a production revolution in drought-resistant grains or in the sustainable management of a natural resource, for example, unless realistic financial means are linked to those ends.
- *Effective management is imperative.* This depends on attention to the details of approval, oversight, evaluation, exit/reauthorization criteria, the subsidiarity principle, separation of oversight from implementation management, and clarity of roles, responsibilities, and accountabilities.
- *The application of universally accepted standards of good governance.* These standards should accord priority to transparency, results-based management, independent evaluation, written agreements and conflict of interest guidelines, assignment of evaluation and auditing functions to governing bodies, and the inclusion of clients in shaping and deciding strategies and programs.
- *Measurement and evaluation need to be explicitly negotiated and stipulated in advance, as a foundation for partnerships and to establish a schedule of independent evaluations.*

These five broad lessons are echoed in other studies on partnership.²⁶ They furnish a best practices framework against

which the CGIAR may address deficiencies in its current partnership arrangements. The starting point is the formulation of a strategic framework, with partnership as one of its key components. Partnership strategies do not function well on their own because they establish partnerships as ends in themselves. Partnerships work well when they are purposive and situated within explicit results-based frameworks. Thus, partnership strategies need to be carefully constructed as a means to ends that are worked out collectively and that establish a “coincidence of objectives.”

Notes

1. *IFPRI Forum*, June 2005, p. 9
2. CGIAR (1998).
3. Gonsalves and Hounkonou (2006), p. 4.
4. Gonsalves and Hounkonou (2006), p. 4.
5. CGIAR (2008b), pp. 34–35.
6. http://www.cgiar.org/pdf/agm06/agm06_mcf_member_funding.pdf, page 2.
7. Compiled through Panel review of the 15 most recent EPMRs.
8. Science Council Secretariat (2006a), p. 96.
9. Science Council Secretariat (2008b).
10. The questionnaire provided three options, of which respondents could choose more than one.
11. CGIAR (2008b), p. 34.
12. Science Council Secretariat (2005).
13. Science Council Secretariat (2007b).
14. GlobeScan (2006a,b).
15. Science Council Secretariat (2007a), p. 93.
16. FAO (2007).
17. Science Council Secretariat (2006b), pp. 1–3.
18. NGO Committee of the CGIAR (1995).
19. CGIAR (2006c).
20. <http://www.cgiar.org/who/structure/committees/partnership/ps-tor.html>.
21. Spielman, Hartwich, and von Grebmer (2007); see also <http://www.hlspinstitute.org/aideffectiveness/global>.
22. CGIAR (2004b).
23. Science Council (2006c), p. 19.
24. Science Council (2006c), p. 22.
25. World Bank (2004a).
26. See, for example, Wilson and Charlton (1997).

Governance reform for the CGIAR is not optional. Without governance reform, it will be impossible to restore confidence in the system

When the CGIAR was founded in 1971 it was small and structurally simple, with only four Centers and a few donors (figure 7.1). The CGIAR's informal decisionmaking governance arrangements met its needs.

Since then, however, the CGIAR's membership and operations have become so diverse and complex that they are difficult to understand—let alone explain (figure 7.2).

The CGIAR System today presents deep paradoxes. Its funding has stagnated even as total official development assistance funds have doubled since 2002. Much of the CGIAR's financing also continues to become less and less stable and predictable, while other development entities (such as the African Development Fund and International Development Association) get multiyear funding increases of up to 50 percent. In the face of climate change, new agricultural technologies have never been more needed, but there is little assurance that the CGIAR System will play a major role in meeting the challenge.

The CGIAR System has been largely absent from recent debates and forums to define international agendas on climate change and food security. Many donors and members openly express a loss of confidence in the CGIAR System. Trust is fragile between the Centers and CGIAR donors and Members. And the Centers are having more and more difficulty attracting and retaining top scientists. Attempts at reform have stalled or fallen far short of their objectives.

It has long been clear that the CGIAR's current governance structures are ill suited to solving such problems. Successive reviews over the past 15 years have concluded that systemwide governance arrangements are cumbersome, ineffective, and driven by inertial

forces that do not allow for decisive decision-making, strategy formulation, or presentation of a corporate identity. The whole is less than its parts. In the Centers and among CGIAR members there is widespread disquiet about the future.

Governance reform for the CGIAR is not optional. Without governance reform, it will be impossible to restore confidence in the system. Without governance reform, the CGIAR's comparative advantage will continue to be eroded—and the CGIAR will become increasingly marginal to the international response to new global challenges.

For illustrative purposes, five distinct stages in the evolution of the nature, context and challenges of CGIAR governance may be described (box 7.1).

Previous reform efforts: findings and lessons

The main preoccupation of the CGIAR System since the mid-1990s has been to bring about successful reforms, with the twin aims of ensuring strategic relevance and securing adequate, stable, and predictable financing. There have been many initiatives, including a crisis summit (Lucerne, 1995), the Third System Review (1998), the Sub-Saharan Africa Task Forces (2003–05), the Technical Advisory Committee Visioning Exercise (2000), the Synthesis Group attempt (2000), the Change Design and Management Team (2000–01), an attempted merger of two Centers (2004), the transformation of the Technical Advisory Committee into the Science Council (2003–04), the establishment of the Executive Council (2001), and the launching of the Alliance of Centers (2006).

Figure 7.1 The CGIAR System in 1971

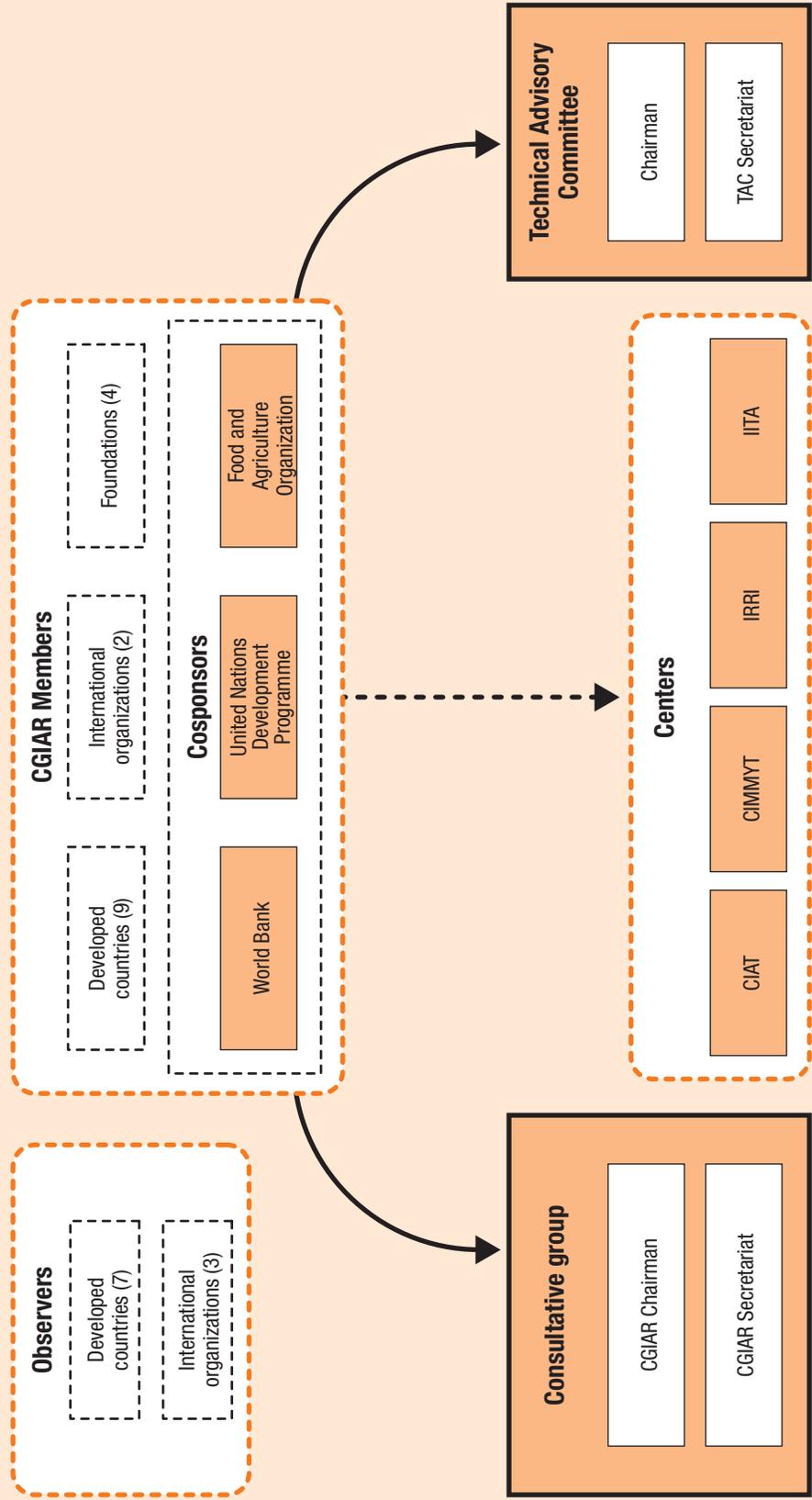
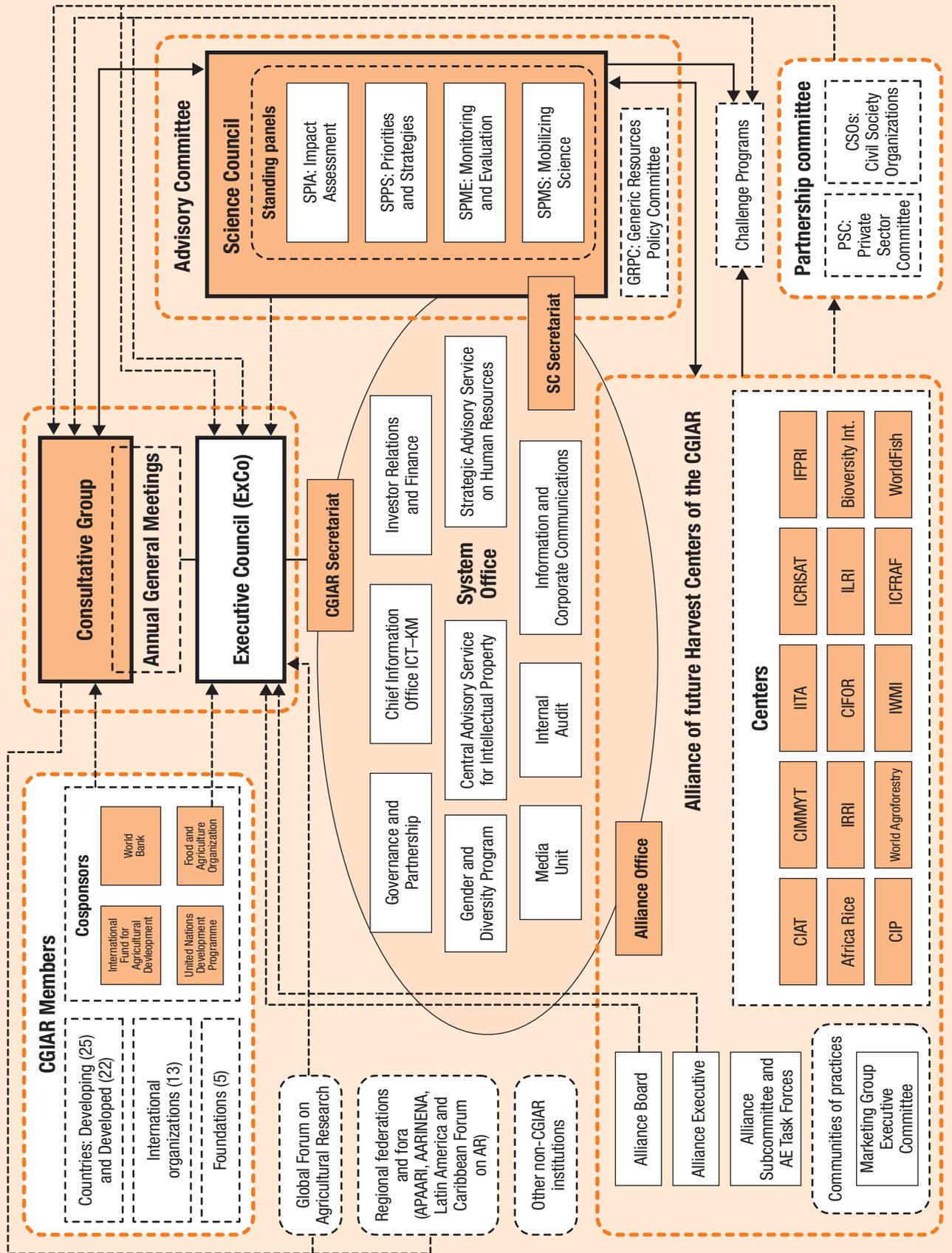


Figure 7.2 The CGIAR System in 2008



All of these efforts and reviews have shared three perspectives:

- That the CGIAR is a unique, valuable partnership of donors and doers, with social capital accumulated over decades.
- That the CGIAR, as a system, is not working as it should.
- That the CGIAR's root problems are structural.

For example, the Report of the Sub-Saharan Africa Task Force found “no System vision for CGIAR in [Sub-Saharan Africa], a large portfolio of un-coordinated CGIAR efforts, over-burdening of NARS, overlap of some Center activities, lack of integration mechanisms for Centers, a large number of projects that would have difficulty in qualifying

as [global-public-good-producing] research, and inter-Center disputes on mandates.” The Report concluded that “the problem faced is less programmatic; the core of the problem is structural. Even if one looks at programmatic alignment, the key concern is how to achieve alignment within the CGIAR itself.”¹

The Independent Review Panel has come to three similar conclusions:

- The 37-year partnership between agricultural scientists and CGIAR members still has a unique comparative advantage for producing and delivering international public goods.
- The CGIAR System is cumbersome and underperforming. It is in a very crowded field with many new actors, including strong research universities

Box 7.1

Five stages of CGIAR governance

The governance of the CGIAR has evolved in five stages, from the period before its foundation in 1971 to the present day.

- **Before 1971.** Before the CGIAR there were four Centers (CIAT, CIMMYT, IITA, and IRRRI), financed by the Ford and Rockefeller Foundations and with boards appointed by the foundations. The boards were small, each with 9–12 members—mainly leading international scientists, and all serving in personal capacities. Their sole governance task was to support scientists to do good science. The foundations directly handled finances and fiduciary matters.
- **1971–90.** In the CGIAR's golden age, its financial resources grew rapidly—mainly as unrestricted core funds. Board membership was decided by CGIAR nomination, board self-renewal, or both. The average number of board members grew to 16. Those members were still mainly scientists, and ensuring freedom in scientific research continued to be the main focus of board governance. There was little direct accountability to donors, with no systematic results measurement or reporting. The number of Centers increased from 4 to 18. Centers' boards varied widely in their governance.
- **1990–98.** A sharp decline in funding led to a financial crisis in 1994, with some Centers verging on insolvency. As donors became more concerned with results accountability, the share of all funding that was restricted rose to 40 percent. In 1993 an Oversight Committee was established—a significant step toward centralized governance. The committee reported “uneven performance” across Centers' boards. Yet in 1995 the Lucerne Summit rejected a proposal for unified governance and failed to reverse the CGIAR's financial decline. By 1997 donors were increasingly pressing for centralized governance and controls—yet again, in 1998, the Centers rejected the Third System Review's proposal for governance by an Executive Board of donors.
- **1998–2007.** The CGIAR slid from crisis to crisis, as a grave decline in the quantity and quality of funding left several Centers near insolvency. Studies and reform efforts proliferated—in 2000, the Visioning Exercise and the Synthesis Group; in 2000–01, the Change Design and Management Team; in 2003–05, the Sub-Saharan Africa Task Force; and, in 2004, a proposed merger of two Centers—but few results were seen. Reform efforts, including pressure from donors for mergers and a single governance structure (especially over 2004–07), aroused opposition and generated distrust between the Centers and the Secretariat. The Centers formed an Alliance as a defense mechanism. CGIAR donors sent contradictory messages—on the one hand pushing for integrated strategies and collective accountability, but on the other hand providing effective incentives that encouraged fragmentation. The CGIAR approved a written, but entirely nonbinding charter.
- **2008.** An uncertain future presented major threats—but with them, new possibilities. A Change Management initiative was launched to renew the CGIAR. Agriculture returned to the center of international political economy, creating a new opportunity. There was widespread agreement on the need for fundamental governance reform. Yet opinions on what that reform should look like differed greatly.

Source: Independent Review Panel.

and NARS, international nongovernmental organizations (now performing many of the tasks that were once the exclusive domain of the CGIAR), and national and multinational corporations forging breakthroughs in agricultural science. Individual Centers have developed research strategies, yet the CGIAR System has no strategic direction and is no longer in a position to exercise the leadership envisaged for it by its original architects. No integrated strategy exists to guide the CGIAR's funding and work toward common objectives.

- The main problems of the CGIAR are structural. They cannot be resolved without major structural changes.

In other words, previous diagnoses of the CGIAR have identified the same problems and the same barriers to moving forward that this Review does. All those previous diagnoses shared the broad goals of rejuvenating the partnership; “upping the game” through increasing the CGIAR's strategic relevance to global challenges; achieving adequate, predictable, high-quality funding; building confidence and trust throughout the system; establishing a shared corporate identity; and making institutional arrangements for effective decisionmaking. Yet they all proved largely unsuccessful—as is apparent in the state of CGIAR finances today, and in the need to launch the present effort for comprehensive and systemwide reform.

Assessing recent reform efforts: the Change Design and Management Team

The most ambitious and comprehensive previous reform effort was a package of changes launched in 2001, based on the work of the Change Design and Management Team (CDMT).² The starting point for the CDMT's recommendations had been that, while there was strong consensus on the need for a structural realignment of the Centers, there was no consensus on what that should

entail. The CDMT's report had proposed “transformation with renewal” around five main objectives:

- Establish a CGIAR strategy on a programmatic basis focused on major problems.
- Achieve more and better financing.
- Improve decisionmaking and increase efficiencies across the system.
- Improve partnerships, with emphasis on national agricultural research institutes.
- Strengthen science in the CGIAR, as the main foundation of its comparative advantage.

Objective 1. Establish CGIAR strategy on a programmatic basis focused on major problems

The CDMT's report found that CGIAR activities had become fragmented, with no strategic focus and many small undertakings that did not add up to the scientific and developmental impacts expected of the CGIAR. To sharpen the focus of the CGIAR, and to fix it more squarely on programmatic approaches and “global problems,” the report proposed a shift to Global Challenge Programs—intended as the catalyst to move Centers away from myriad, small, and underfinanced projects toward a collective focus on major global challenges. The Challenge Programs were also intended to build new partnerships (especially with NARS), to generate significant new financing, and to become about 50 percent of the CGIAR research program by 2006. Time-bound, independently governed, high-impact research programs were to give the CGIAR a strategic focus.

Despite some undoubted gains through the Challenge Programs, the CGIAR's overall performance against the CDMT's objectives has been very disappointing. The Challenge Programs have not attracted worthy project concepts or proposals from external organizations. The process has been started, stopped, and started again, while more than 80 submissions have led to only one new program since 2003. Six of the seven concepts

Previous diagnoses of the CGIAR have identified the same problems and the same barriers to moving forward that this Review does

Despite the low success rate in the process for developing new Challenge Programs, some of the programs now in place are promising and point to a future strategy for programmatic research

that have reached the full proposal stage have come from Center-led consortia—and, it might be argued, could have been generated through a less complex internal process, with incentives to involve external organizations. Three “lessons learned” reviews have been carried out, two by the Science Council and one by the Alliance.³ They found that the Challenge Programs have created additional research infrastructures with new transaction costs. Such processes undermine the quality of proposals. By compelling many centers to participate in proposals, they generate “overcrowded” proposals that lack focus and that fail to build strong external partnerships.

Although the Challenge Programs have brought in some new funding, much of that funding has not been incremental. Indeed, the World Bank has diverted funding that would otherwise have been mainly unrestricted funding to Centers—eroding the Centers’ confidence in the Challenge Programs. And the Challenge Programs have been slow to develop. The complex, multistage procedures for awarding new programs have created only limited incentives for new partnerships and have inhibited responses. Far from becoming 50 percent of the CGIAR’s research program by 2006, the Challenge Programs were only about 9 percent of that year’s program, with only about half going to Centers.

The Panel is concerned that the development of new Challenge Programs has not been well integrated with internal CGIAR strategic research planning (planning that is now associated with System Priorities). The Panel is also concerned about the consistency of financial arrangements, management, and associated risks. The Panel recommends an independent financial audit of the Challenge Programs.

On the positive side, several pilots “fast tracked” through the Challenge Programs are excellent examples of innovative, high-impact research (see appendix 1 for a description of ongoing programs). These programs have added value to CGIAR research through external partnerships.⁴ Although they have yet

to demonstrate “proof of concept,” they can potentially make outstanding contributions. These existing Challenge Programs demonstrate the clear potential for inter-Center collaboration and for strategic partners’ engagement in a new, programmatic approach to CGIAR research.

Recent assessments of the Systemwide and Ecoregional Programs suggest that many of them are strongly “downstream,” and are better managed by partner institutions.⁵ But the assessments also suggest that some of these programs have—like the Challenge Programs—a strong complementary potential to contribute to research and to capacity building. The Systemwide and Ecoregional Programs deserve further development.

The Panel concludes that despite the low success rate in the process for developing new Challenge Programs, some of the programs now in place are promising and point to a future strategy for programmatic research. Such a strategy would involve Center-led research consortia that are directed at key research challenges, committed to innovative external partnerships, and aligned with overall system strategy.

Objective 2. Achieve more and better financing

The CDMT underscored a principle that is apparent in the history of development: new money, and more money, flows to exciting concepts targeted at current and relevant challenges. Arguing that the CGIAR would need to make this happen, the CDMT also indicated that the potential for significant increases in funding from the CGIAR’s traditional donors was limited—and that this would challenge the CGIAR leadership to bring in new sources of financing, including donations in kind. Finally, the CDMT urged more attention to expanding multi-year financing. The CDMT proposed the Challenge Programs as the main vehicle to bring about these changes and to bring more, higher-quality financing to the CGIAR. The CDMT’s report was also clear that the Challenge Programs should be financed from

“incremental resources” and should not divert funds from existing activities.

Against all these goals, results have been disappointing. The Bill & Melinda Gates Foundation has provided some new financing, yet most Challenge Program financing does not involve newly added funds. Nor has the quality of financing increased. If anything, it has decreased, with a steady trend toward year-by-year unpredictability, short-term restricted finances, and numerous small projects. Finally, the goal of more diverse financing has not been met.

Objective 3. Improve decisionmaking and increase efficiencies across the system

The CDMT recommended establishing two new CGIAR bodies, to improve decisionmaking and to make the system more efficient.

- To improve decisionmaking, the CDMT proposed creating the Executive Council, a body delegated to perform functions and carry out actions following from Annual General Meetings. Comprising mainly shareholders, the council would also include the cosponsors and two ex officio representatives of the Centers.
- To make the system more efficient, the CDMT proposed integrating the existing CGIAR Secretariat and several isolated support functions into a single new entity, the System Office. It would make overall services more efficient, reduce costly and conflict-creating duplication, promote alignment across the System, assign clear roles and responsibilities, remove “nondecisionmaking committees,” and consolidate support for the entire CGIAR System. The System Office would also provide a single, integrated communications function “to drive a new System communication vision and strategy in cooperation with the Centers’ public awareness units.”⁶ Through common management and

delivery support services provided by the System Office, the Centers would become more efficient.

The Executive Council was established in 2001. It received no decisionmaking authority, but only a mandate strictly limited to “co-ordinating, monitoring, overseeing, and recommending.” Since then the council has evolved somewhat. For example, the 2007 Annual General Meeting gave it decisionmaking authority on matters related to External Program and Management Reviews. However, the Independent Review Panel survey of informed stakeholders and interview results indicate that the Executive Council is widely considered a “lost opportunity” because it has not assumed enough qualities of a decisionmaking body. Less than 1 percent of respondents to the survey called the council “very effective”; over 70 percent assigned it ratings ranging from “not clearly effective” to “completely ineffective.” Meeting records confirm that the Executive Council has focused on processes, taking almost no decisions. True to its original framework, it has mainly advised and promoted continuity between Annual General Meetings. Issues or proposals to delegate decisionmaking authorities to the council have not been a regular part of Annual General Meeting agendas.

The System Office was created in 2001. Ten units, until then operating separately, were brought under its umbrella (table 7.1). The units vary considerably in size and character—from the CGIAR Secretariat, with its \$4.15 million budget, to small units with few staff and budgets under \$300,000.

The objectives of streamlining and removing “nondecisionmaking committees” through the System Office seem to have been nullified by the CGIAR Charter approved in 2004. According to the charter, the System Office “is a virtual office and is not a physical consolidation,” while “each unit will continue to be accountable in a fiduciary and performance sense to its own governing authority” and also “in a broad sense to the [Executive Council] (with) accountability being coordinated through the CGIAR Director.”⁷

The Independent Review Panel survey of informed stakeholders and interview results indicate that the Executive Council is widely considered a “lost opportunity” because it has not assumed enough qualities of a decisionmaking body

Table 7.1 CGIAR System Office structure (through the end of 2007)

System Office unit	Established	Intended purpose
CGIAR Secretariat	1975	The hub of the CGIAR System. It is intended to have a significant integration and facilitation role—ensuring that collective action by many independent, but interdependent components is directed to the CGIAR mission. The secretariat implements communication with the CGIAR System and with its partners.
Science Council Secretariat (formerly the Technical Advisory Committee)	1975	Intended to provide technical and administrative support by preparing strategic studies and documents, preparing external reviews, organizing Science Council meetings, backstopping the activities of four Science Council panels, and implementing Science Council decisions.
Alliance Office	2006	Established by Center Board Chairs and Center Directors General; conceived as an integral part of the CGIAR System Office. Intended to provide high-level strategic and operational support to CGIAR Centers, to ensure the alignment of the Centers' work with the wider CGIAR activities and objectives, and to inform the collective work of the System Office with the Centers' views and expertise.
Gender and Diversity	1999	Intended to provide and facilitate expert advice and enhance the exchange of knowledge and experiences.
Internal Audit	2000	Intended to provide a cost-effective internal audit service to improve operations and strengthen internal controls in participating Centers.
Central Advisory Service for intellectual Property (CAS-IP)	2002	Intended to provide and facilitate expert advice and intellectual property management and technology transfer.
Chief Information Officer	2002	Intended to help plan and coordinate information technology and information and knowledge management within the CGIAR System.
SAS-Human Resources	2003	Intended to help participating Centers define needs, develop and implement sound people policies through strategic approaches, and monitor the impact and success of human resources policy and practice.
Media Unit	2006	Intended to develop and implement a media strategy that secures positive coverage, in mainstream print and broadcast media outlets, of joint Center research achievements and of the impacts of collective work.
Association of International Agricultural Research Centers (AIARC)	Withdrawn	
Future Harvest	Withdrawn	

In 2007, the System Office Steering Committee determined that the Science Council Secretariat should be removed from the System Office, to assure the independence of the secretariat's science advisory role, and that the remaining units should be amalgamated into five (the Alliance Office, the CGIAR Secretariat, the Internal Audit Unit, the Intellectual Property Advisory Unit, and the Information Office). The System Office Steering Committee also determined that the Alliance Office and all other units except the CGIAR Secretariat should have a program advisory committee.

These measures in the Charter and by the System Office Steering Committee suggest a tendency toward creating complicated

structures and committees. Within the Centers, the Panel found a high level of frustration with the System Office over what the Centers view as unnecessary demands for information and unrealistic time deadlines. Representative views of the System Office from the Centers include that the office is “distant and aloof,” that it is “concerned more with making work for us than with helping us to work,” and that it is “supply-side” (“they don't take time to understand what we really need”).

These negative assessments are highly correlated with failures of trust. All reports show that confidence between Centers and the System Office has declined in recent years. However, there is encouraging evidence that trust

has begun to improve over the past year or so.

Objective 4. Improve partnerships, with emphasis on national agricultural research institutes

The CDMT reported that the CGIAR would need to develop very different partnership arrangements—especially with the NARS, where the new arrangements were needed to reflect the institutes’ increased capacities. The new partnerships were to place greater emphasis on full partnerships in research, and on networks of partnerships as opposed to brick-and-mortar institutions (given advances in information and communications technology).

The Panel found many effective partnerships at individual Centers. But it also found that most such partnerships are almost completely ad hoc. And it found that the Centers lack tools, including financial tools, to engage in and manage partnerships. Ambitious strategies, with embedded partnerships that attract financing for promising major development breakthroughs, are lacking.

The relationship between the CGIAR and the NARS has changed considerably over the past 35 years. On the whole, the CGIAR has co-evolved well with most of the NARS around the world. However, more than one Center has tense relations with the NARS. Many interactions are more competitive than collaborative. Several NARS representatives complained to the Panel that the CGIAR patronizes the NARS.

Competition for funding is an undercurrent in tensions both among CGIAR Centers and between Centers and their NARS partners. In the Independent Review Panel survey of informed stakeholders, developing country respondents expressed a desire for Centers to devolve relevant activities to strong NARS and for the NARS to play a greater role in priority setting. Two key donors noted that the tensions between the NARS and the Centers have made it difficult for them to increase funding to the Centers, given that their mandates assign priority to country-level capacity building,

Objective 5. Strengthen science in the CGIAR as the main foundation of its comparative advantage

Concerned that CGIAR’s comparative advantage in strong science was weakening, the CDMT recommended transforming the Technical Advisory Committee into a Science Council. This council was established in 2004 with the objectives of:

- Enhancing and promoting the quality, relevance, and impact of science in the CGIAR.
- Advising the CGIAR on strategic scientific issues important to its goals.
- Mobilizing and harnessing the best international science to address goals of the international agricultural research community.

The Science Council pursued these objectives through four specific activities of four Standing Panels—on Impact Assessment, on Monitoring and Evaluation, on Priorities and Strategies, and on Mobilizing Science.

Through its Standing Panel on Impact Assessment the Science Council has undertaken work of high value on retrospective, systemwide assessments of CGIAR research, along with more focused research on project assessment. It has sought to help Centers with retrospective assessments and to build an “impact culture” in the system. Much of its work has focused on crop genetic improvement impacts, but efforts are also being made to evaluate the impact of research in other areas, including natural resource management and policy-oriented research (which now constitute a substantial proportion of CGIAR research spending; see chapter 3). The Science Council is also aware of a growing need to expand beyond retrospective performance evaluations to prospective evaluations of potential performance as a basis for strategic priority setting. Some Centers (such as IFPRI, with its Harvest Choice project) are making important advances in this area. The Science Council should play a major role in supporting prospective evaluations across the system.

Through its Standing Panel on Monitoring and Evaluation the Science Council has

Through its Standing Panel on Impact Assessment the Science Council has undertaken work of high value on retrospective, systemwide assessments of CGIAR research, along with more focused research on project assessment

managed an impressive volume of Center evaluation and assessment on behalf of the CGIAR System—including, since its inception, the External Program and Management Reviews of 13 Centers (bringing this process back on track) and external reviews of four new Challenge Programs. In addition, it has put in place a plan to simplify and standardize monitoring and evaluation, making performance measurement more and more integrated, common, and consistent across Centers.⁸ Such streamlining was intended to reduce the burden of assessment on Centers. Yet other changes, such as the CGIAR Secretariat’s introduction of the Performance Measurement System, have contributed to a view in many Centers that the burden of reporting has, if anything, grown—with little evidence of associated benefits, such as increased funding or fewer independent donor evaluations of Centers (box 7.2).

The Science Council’s Standing Panel on Priorities and Strategies has focused on

completing and starting to put in place the System Priorities—a process that the Science Council inherited at its establishment in 2004. The Science Council has also progressed with several studies in areas of strategic significance to the CGIAR System, including biosafety and ethics. This effort has been valuable. It calls for more investment, and for close integration with Centers in design and execution to ensure that its outputs are relevant and used.

The most challenging task for the Science Council was that of its Standing Panel on Mobilizing Science. A new undertaking for the System, this Standing Panel required the Science Council to make a System-level contribution that would add significant value to the existing work of Centers in engaging partners from their research areas and regions. Efforts included developing a database of Center research partners, publishing a book in international agricultural research,⁹ and contributing to *World Development Report 2008*

Box 7.2 The Science Council—perceptions of its importance and effectiveness

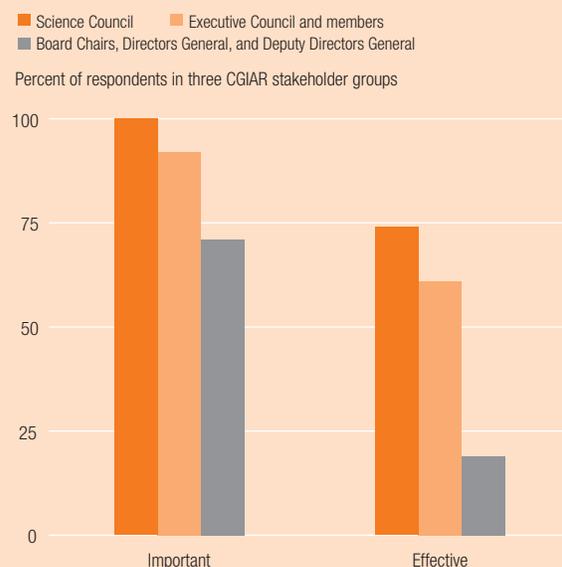
The Panel surveys and consultations—with other recent studies—suggest how donors and Centers view the Science Council. All view the council and its roles as important to the CGIAR System. The Executive Council and CGIAR members value the Science Council’s reporting on evaluations of Centers and research initiatives as a major contribution to the business of the Executive Council.

Nevertheless, more than 80 percent of Center Board Chairs, Directors General, and Deputy Directors General believe that the Science Council has not been effective (see figure). The main reasons given are that the Science Council:

- Focuses too much on its evaluation role, overburdening Centers with reporting requirements without obvious benefits to the Centers.
- Does not do enough to help the Centers to explore future opportunities and challenges and to mobilize the international scientific community.
- Does not engage or communicate effectively with the Centers.
- Imposes too narrow a view of science on the Centers.

Other studies also point to these concerns. And several donors share them—agreeing, in particular, that the Science Council should help the Centers with its work on strategy and on mobilizing science.

Survey respondents who rate the Science Council “important” and “effective”



Source: Independent Review Panel survey of informed stakeholders.

on agriculture for development. A plan for a regular international conference was not fully realized, but has recently been revived.

In the view of CGIAR management, donors, and Centers, the Standing Panel on Mobilizing Science has not been very successful. CGIAR, as a collective entity, was absent from important dialogues on climate change and the food crisis. It is very important for the CGIAR to develop this area in future.

Lessons learned

The CDMT reform effort was the most comprehensive and ambitious of recent reform efforts. But in its diagnostic it was broadly similar to the others. Why have they all come to so little? The Sub-Saharan Africa Task Force suggested that the principal cause is the territoriality of the Centers. The Panel agrees that the suggestion has some validity, but also considers it a vast oversimplification.

CGIAR reform efforts have disappointed, not because of any one factor, but because of a collective failure. The Panel agrees with the Advisory Group to the World Bank 2003 meta-evaluation of the CGIAR, which concluded that the cause of failure in efforts to reform the CGIAR has been a tragedy of the commons. Each donor furthers its aims by providing funds restricted to those aims. Each Center goes its own way, partly to get such funds, partly because doing so frees it from pressures to work with the System as a whole. The results are lack of systemwide strategy, little sense of overall ownership, and loss of System efficiency.¹⁰

All the main parties to the CGIAR partnership are equally responsible for the failure of efforts to achieve effective governance. The parties participate in good faith and genuinely want to strengthen the CGIAR. Yet deep inertias at the Centers have combined with a fractured system of donor goals and incentives to create a continuing impasse. The parties default to their own immediate interests, and the result is indeed a tragedy of the commons.

Any renewed attempts to reform the governance of the CGIAR System would do well

to start with lessons learned from past efforts. Five such lessons stand out:

- *Evolutionary approaches to restructuring have not worked and are unlikely to work if attempted again.* This observation is not unique to the CGIAR. A main conclusion from the many restructuring attempts of UN development agencies is that their complicated multilateral governance structures are subject to change only through directive, top-down approaches with specified milestones.¹¹
- *Most CGIAR reform efforts have started by reaffirming three founding principles of the CGIAR—donor sovereignty, Center independence, and consensus decisionmaking—which have been outdated since the Paris Declaration and which are root causes of dysfunctional CGIAR governance.* Donor sovereignty must give way to more harmonization and coordination. Center independence must give way to more network collaboration. Both donors and Centers must relinquish old, dysfunctional patterns of governance to make the CGIAR more relevant and effective in responding to challenges because the stakes are so high—reducing hunger and poverty in the world. Decision-making must be founded on clear authority, with binding decisions.
- *Sound governance requires clearly assigned responsibilities, accountabilities, and effective authority.* Past reform efforts have explicitly recognized these factors, but have failed to resolve them. In the words of the CDMT: “At present, most decisions default to mechanisms (committees, TAC [Technical Advisory Committee], and Secretariat) which either lack authority or comparative expertise. Multiple committees examine the same issues. Decisions are not strongly binding on either shareholders or the Centers . . . there is no mechanism for following

Both donors and Centers must relinquish old, dysfunctional patterns of governance to make the CGIAR more relevant and effective in responding to challenges because the stakes are so high—reducing hunger and poverty in the world

The Centers were encouraged to believe that their resources would increase if they supported the Challenge Programs, but the added resources failed to materialize

up decisions . . . and hence no clear accountability for success or failure.”¹² Past efforts have tended mainly to establish an ever-increasing array of structures, based on ad hoc relationships that have further blurred lines of responsibility and accountability.

- *The incentives for change need to be aligned with strategic objectives.* Clearly established and adequate incentives have not been provided to support efforts to bring about significant structural and governance reforms, including consolidations and mergers of individual Centers. The Centers were encouraged to believe that their resources would increase if they joined in and supported the Challenge Programs, but the added resources failed to materialize. There is no incentive for Centers to participate in Challenge Programs when they suffer loss of unrestricted funds as a result. Centers view some possible changes as fraught with risk—to reputations, to brand recognition, and to jobs. Moreover, as the Sub-Saharan Africa Task Force correctly observed, several donors have directed incentives toward individual projects, many of them short term and modest in their ambitions. Such incentives perversely reinforce the CGIAR’s basic problems: a lack of strategic focus and a lack of system coherence.
- *Since the core problem of CGIAR governance is structural (as the Sub-Saharan Africa Task Force rightly concluded), solving the problem will require changes to the CGIAR’s governance structure.* Past reform efforts have presumed that the CGIAR’s form—its structure—will follow its function. In the CGIAR’s case, however, structures for decisionmaking are not in place. Without such structures the decisions needed on strategy, strategic objectives, aligned allocations, and a results framework are

denied. Although management theory generally affirms that form should flow from function, it also shows that to decide about function, form must be in place. For the CGIAR, function will need to be preceded by form.

The World Bank’s role in CGIAR governance

The World Bank has helped drive the development of the CGIAR from its inception. The Bank is a linchpin of the CGIAR’s finances, operations and governance. It houses the CGIAR Secretariat, provides it with a Chair and Director, and gives it major financial support. The Bank now pays all the costs of the CGIAR Secretariat, \$4.2 million in 2007. The Panel has estimated the total costs of the CGIAR System Office (including the costs of the Annual General Meeting and the costs borne by the Food and Agriculture Organization for the Science Council) at about \$14 million in 2006, of which the Bank paid about \$10.2 million, or 73 percent. That does not meet the Bank’s own guidelines for its Development Grant Facility, which state that the Bank should not fund more than 50 percent of the costs of an in-Bank secretariat “to avoid a program’s over-reliance on the Bank.”¹³

The multiple roles of the Bank in the CGIAR have strengthened the CGIAR System, but have also created problems and distortions. According to the Independent Evaluation Group of the World Bank (then the Operations Evaluation Department), writing in 2003, the multiplicity of roles the Bank has assumed has led to:

- Excessive Bank involvement in the day-to-day management of the System and dependence of the System on the Bank.
- Little use by the CGIAR of the Bank’s country assistance capability and only minor intellectual engagement between programs of the World Bank Agriculture and Rural Development Department and the Centers.
- A disproportionate share/burden of CGIAR management responsibility

allocated to a Bank senior manager already burdened by other heavy managerial responsibilities.

Reporting relationships for both the CGIAR Secretariat and the Bank that [involve] real or potential conflicts of interest. These features limit the capacity of the Bank to provide the objectivity and leadership needed. . . .”¹⁴

Responding to the evaluation, Bank management agreed on the importance of separating the Bank’s management and oversight functions and indicated that the Bank’s “Chief Economist would be responsible for the oversight function.”¹⁵ Bank management also announced that there would be independent triennial evaluations of the CGIAR, with Bank Board approval, as a requirement for continuing Bank support. This Review—five years following the announcement—is the first such exercise. The Office of the Chief Economist had some input into the terms of reference for this Review. But that office was not represented on the ad hoc committee of the CGIAR that drafted those terms, nor on the advisory and steering committee for the Panel. It is not clear to the Panel what other CGIAR oversight actions the Bank expected its Chief Economist to take.

The Panel concludes that although an initial step was taken to separate and strengthen oversight after the Bank’s evaluation of the CGIAR, nothing has changed the essential problem: that the Bank is both a major donor to the CGIAR and its dominant manager. The weaknesses identified in the evaluation remain basically unchanged after five years.

The World Bank provides the Chair of the CGIAR, and all but the first CGIAR Chair have been World Bank Vice Presidents responsible for agriculture. Respondents to the Independent Review Panel survey of informed stakeholders agree that these appointments have served the CGIAR well. Almost two-thirds of respondents consider it important or very important to the CGIAR that it have a World Bank Vice President as its Chair. The Panel concurs. The Bank’s convening power has been, and continues to be,

essential to the CGIAR’s global role and the impact it can have.

The Panel, however, sees a need to distinguish between two views of this relationship. On the first view, a World Bank Vice President chairs a consultative body to mobilize resources, to encourage strategic allocation of those resources, and to coordinate agriculture investments to support the best use of agricultural research—a highly appropriate and important role. On the second view, a World Bank Vice President chairs a joint organization of Centers, taking substantial responsibility for Center operations—a somewhat inappropriate role, and one without comparative advantage. Given the limits on how much time a World Bank Vice President can spend working as the Chair of the CGIAR, chairing a consultative body seems a better fit than chairing a joint organization of Centers.

The CGIAR Director, too, is a World Bank staff member. That gives the CGIAR system still more access to the Bank’s organizational and convening powers. But it also makes it difficult to distinguish where the CGIAR Secretariat ends and the Bank begins. The Panel understands, for example, that the performance appraisal of the CGIAR Director is a sole prerogative of the Bank.

Respondents to the Independent Review Panel survey were polarized on the value of the CGIAR Director being a World Bank staff member. A majority thought it was important, yet a substantial minority dissented. Ambivalence over the position of the CGIAR Director arises (like ambivalence over the Chair’s position) partly from a lack of clear responsibilities and authorities. The Panel sees a major distinction between the role of the Director of a consolidated donor fund for the CGIAR, and that of the chief administrator and manager of a collectivity of Centers. The Director of a consolidated donor fund requires deep knowledge of international development, but only modest management ability (the Secretariat of the Fund would not need to be large or complex). In contrast, the chief administrator and manager of the joint Centers would need to be a credible leader of

The Bank’s convening power has been, and continues to be, essential to the CGIAR’s global role and the impact it can have

Table 7.2 Panel assessment of the World Bank's role in the CGIAR

Criteria	Panel rating	Comment
Oversight	Medium	The World Bank stated in 2003, after its Operations Evaluation Department did an independent evaluation of the CGIAR, that the Bank's "Chief Economist would be responsible for the [CGIAR] oversight function." ^a It is not clear to the Panel what the Bank expected its Chief Economist to do in that capacity. (The Office of the Chief Economist had some input into this Review's terms of reference, but was not represented on the committee drafting the terms or on the Panel's advisory and steering committee.) The roles in the CGIAR of the Bank's Agriculture and Rural Development Department, and of its Sector Board, have also remained unchanged. The Panel finds that although an effort was made to separate and strengthen oversight after the 2003 evaluation, the Bank remains both a major donor to the CGIAR and its dominant manager. That is a problem.
Subsidiarity	High	The CGIAR and the network of Centers form a highly decentralized partnership. Most operational decisions are decentralized. Subsidiarity is not a significant problem.
Comparative advantage	Medium	The World Bank has relevant strengths, only partly replicated among CGIAR cosponsors. The CGIAR furthers the Bank's development and resource mobilization objectives in fields basic to the CGIAR's operations, but does not compete with regular Bank operations. However, some of the support the Bank could give to the CGIAR, and some of the benefits it could draw from its involvement, are not realized. At the country level, the Bank does not seriously engage the Centers for multisectoral views, development analysis, or country-level presence and knowledge. There are very few linkages between Bank country operations and the Centers. The Bank has a global mandate, reach, and convening power—but it has not fully exploited its capabilities to produce a global vision for the CGIAR.
Multicountry benefits	High	The CGIAR and its affiliated Centers produce global public goods and regional public goods (research findings, germplasm conservation) that would be more difficult to produce country by country.
Leverage (narrow)	High	Narrowly defined as the relationship of World Bank funding to total CGIAR funding, the amount of leverage is appropriate. The Bank's contribution does not exceed the guideline 15 percent of total funding of the CGIAR and Centers. (Indeed, the Bank's contribution is under 10 percent, and is falling as a share of total CGIAR funding.)
Leverage (broad)	Medium	In the CGIAR's founding phase the Bank's contribution was probably an essential lever to other donors. It is probably still important to ensure adequate funding to the Centers—but not as essential as it was, since agriculture and agricultural research have now reestablished their importance during the food price crisis. The Bank has not increased net funding since 2001, but it has worked successfully to limit the effects of Japan's reduced contributions. It encouraged two more donors and foundations to join the CGIAR. For most of the past two decades, the Bank has taken the lead in making agriculture an international development priority. The Bank could do more to support human resources for development, in the opinion of the Panel, by engaging the 3,200 scientific staff at Centers.
Managerial competence	Medium	The Panel generally finds the managerial competence of the System Office acceptable compared with the norm for global funds. Structural weaknesses exist, however. Unclear responsibilities and inadequate authorities make management difficult. For example, the System Office may monitor the financial situation of Centers, but has no authority to intervene—only to advise.
Arm's length relationship	Low	The management of the CGIAR is not independent of the Bank Group. Over a long period the requirement for an arm's length relationship has been waived.
Risks and risk management	Low	Several risk areas are not adequately controlled—and probably cannot be within the present governance structure of the CGIAR and the Centers. Financial risk exposure tends to persist for a long time. When a crisis occurs, the Bank tends to be the funder of last resort. There is also some risk to the Bank's reputation. The Centers' compliance with Bank safeguard policies is not actively monitored, and ethical reviewing of research projects varies by Center.
Disengagement strategy	Low	The Bank has not yet faced the need to disengage from managing network aspects of the Centers. The key need is to disengage from operational involvement with the System Office, and to reorient the Bank's involvement toward resource mobilization, strategic resource allocation, and investment coordination.
Promoting partnerships	Medium	The CGIAR's main initiative for partnerships in the past five years has been the Challenge Programs. They have had mixed success. The CGIAR's relationships with nongovernmental organizations are poor. Relationships with the private sector are minimal and are slighted.
Institutional capacity	High	The World Bank did much to establish and maintain the CGIAR as a major research and conservation institution with a focus on development. The Bank's continued involvement in funding CGIAR Centers is very important. Also very important is the Bank's leadership in promoting CGIAR governance reform.
Overall appropriateness of Bank involvement	High, but more selectivity needed.	The Panel thinks the World Bank's involvement in the CGIAR is strong in some areas, relatively weak in others. The Panel rated the Bank in the CGIAR as high in four areas, medium in four, and low in four. Overall, the practical benefits of continuing a long tradition of Bank involvement are high. The Panel therefore thinks that the Bank should continue to play a leading role in the financial and funding side of the CGIAR, but that the Bank should disengage from a direct management role.

a. World Bank (2003), p. 177.

such Centers (with scientific credentials), a thoughtful and persuasive strategist, and an effective manager of fairly large joint operations. The Panel concludes that the two roles should be separated.

The World Bank Independent Evaluation Group has formulated 12 criteria against which the Bank's participation and performance in global funds can be judged. The Independent Review Panel has rated the Bank's involvement in the CGIAR against those and similar criteria (table 7.2). The Bank's involvement in the CGIAR is assessed as strong in some areas, but relatively weak in others. The practical overall benefits of continuing a long tradition of involvement are high. The Panel concludes that the Bank should continue to play a leading role on the financial and funding side of the CGIAR, but should disengage from a direct management role.

In summary, previous reform attempts have not been successful in addressing the dysfunction that is recognized by most shareholders, stakeholders, and the Centers alike. Taken together, the lessons of the CDMT reform and the Panel's analysis suggest that there is confusion between the roles of governance and the roles of management. The primary purpose of creating System-level governing bodies such as the Science Council, Consultative Group Secretariat, Executive Council, and various System Office units was (or should have been) to provide strategic direction for the CGIAR and the affiliated Centers. The individual Centers could not accomplish this individually without an overarching structure.

The System-level governing units, however, have not provided strategic direction but, have focused instead on matters typically handled at the operational and management level of organizations. For example, the Science Council takes responsibility for performance monitoring, the CGIAR Secretariat takes on financial reporting and budgeting,

and the Executive Council takes on responsibilities for "doing things right" rather than focusing on whether the System was "doing the right things." Governance responsibilities ensure that structures, functions, processes, and culture are aligned with the system's strategic objectives and ensure that objectives are achieved effectively and transparently.

In the next and final chapter, the Panel lays out a model for a balanced partnership between the CGIAR and the affiliated Centers. The Panel recommends a new compact based on the separation of governance and management. It aims to assist the CGIAR System to capture the implications of the Panel's diagnoses by addressing the structural impediments to bringing together the best of science and the best of agricultural development in a common cause.

Notes

1. CGIAR Secretariat (2005b), p. 10.
2. CGIAR (2001c).
3. Science Council and CGIAR Secretariat (2004, 2007).
4. Uauy, Palenberg, and Zakri (2008); Biswas, Palenberg, and Bennet (2008); Science Council (2008b).
5. Bevege, Egger, and Debela (2006); Science Council (2008f).
6. CGIAR (2001c), p. 8.
7. CGIAR (2003b), p. 18.
8. Science Council (2005a, 2006e).
9. Science Council (2005b).
10. World Bank (2003), p. 4.
11. See, for example, Schlesinger (1997) and Nordic UN Project (2000a,b).
12. CGIAR (2001c), p. 21.
13. World Bank (2000), p. 5. The guidelines continue, "After no more than three years, a decision should be made either to move the secretariat out of the Bank, or to keep it in the Bank with strong donor support, or to discontinue the effort due to lack of donor interest or other reasons. In exceptional cases, where there is strong donor interest in maintaining an in-Bank secretariat after three years, then this secretariat should be financed 100 percent by partners."
14. World Bank (2003), p. 27.
15. World Bank (2003), p. 177.

Doers and donors— a rebalanced partnership

The partnership between CGIAR Members and donors has become frayed. The CGIAR System needs to find its strategic direction. Its main funders have been losing confidence. Without a new compact to rebalance the partnership, the CGIAR's decline will continue

A central finding of this review is that the 37-year partnership between CGIAR Members and donors and CGIAR Centers is a strong comparative advantage of the CGIAR. No other international arrangement comes even close to bringing together development agencies and agricultural science in a common cause.

However, the partnership has become frayed. The CGIAR System needs to find its strategic direction. Its main funders have been losing confidence. Without a new compact to rebalance the partnership, the CGIAR's decline will continue.

CGIAR Members and donors must strike a new balance among providing unrestricted resources to the Centers, achieving greater programmatic coherence in funding, and strategically targeting grants. And resource allocation must be more heavily influenced by the Centers' performance. In return, the Centers must take collective responsibility for their well-being, collaborate to make the network more coherent, act programmatically, make firm strategic and organizational decisions, and be cost-efficient.

The Panel has identified four actions that are most likely to equip the CGIAR to be a major institutional force in meeting the new agricultural challenges of the 21st century:

- The CGIAR's governance and management functions should be separated to avoid conflicts of interest and confusion over mandates and authorities. Management responsibility for operations should be separated from oversight.
- The donors should set up a new CGIAR Fund for Agricultural Research—as a new channel for predictable,

unrestricted funding to Centers and for restricted funding to programs, and as a foundation for fundraising. Money should be allocated from the CGIAR Fund to Centers and to programs according to rules and partly according to performance. In deciding how much grant funding to channel through the pooled CGIAR Fund, donors should keep in mind their Paris Declaration commitment to provide two-thirds of their development aid on a program basis by 2010.

- The Centers should strengthen their institutions for common action by consolidating common services, common policy and strategy, and program administration in a joint Consortium.
- Both donors and Centers should establish decisionmaking with clear authorities. Nonbinding decisionmaking no longer works for a collective enterprise that expends half a billion public dollars annually—an amount that should be expected to increase substantially if the above actions are taken.

The Panel considers that, in addition to making the CGIAR generally more effective, the recommended governance approach will economize. The true costs of governance will drop when the dysfunctions of the present system are remedied.

The proposed structure of the partnership

The Panel envisages a continuing close partnership between CGIAR Members and donors

and CGIAR Centers, with a dual structure that clarifies responsibilities and authorities. This balanced partnership structure will comprise the CGIAR Fund, a Consortium, and other bridging institutions (figure 8.1).

The CGIAR Fund

A new instrument, the CGIAR Fund, will enable CGIAR donors to raise new funds—preferably through multiyear replenishment, but allowing some donors to be accommodated with a yearly appropriation supplemented by indicative figures for future years. The Fund would allocate the money strategically through a performance-based resource allocation system, somewhat similar to those of the World Bank’s International Development Association or the Global Fund to Fight AIDS, Tuberculosis, and Malaria. These practices enable agencies to allocate funds strategically, while leaving their specific uses unrestricted. Performance-based allocations would be made according to explicit criteria and with explicit weights.

The CGIAR Fund must break new ground

The Fund would be governed by a Council and would have a Chair, Director, and Secretariat. The inaugural convention would draft the Council’s constitution.

The CGIAR Fund’s decisionmaking body—a new Council of the CGIAR Fund—would be principally a shareholder governing body made up of contributing members, including foundations. The details of membership would need to be worked out during the transition period proposed below. One shareholder membership option would be to assign voting shares on the basis of groupings (constituencies) to accommodate both larger and smaller shareholders and other stakeholders. The Chair of the CGIAR, traditionally appointed by the World Bank, would serve as the Chair of the Council.

The CGIAR Fund’s key responsibilities would be to lead funding negotiations, to maintain strong links with the development

community and with research on poverty reduction, and to allocate money to programs or Centers according to agreed criteria and rules. It would work to ensure follow-through on financial pledges, to receive and hold funds provided to it, and to make funds available to the Consortium of Centers. In making funds available, it would apply the conditions and schedules agreed in multiyear financing discussions, including agreeing to mutual expectations with the Consortium on performance- and results-based reporting, milestones, and benchmarks. It would decide on the evaluation work program proposed by an independent evaluation unit. It would likely need to meet quarterly, with additional frequent meetings, as required, for multiyear financing discussions.

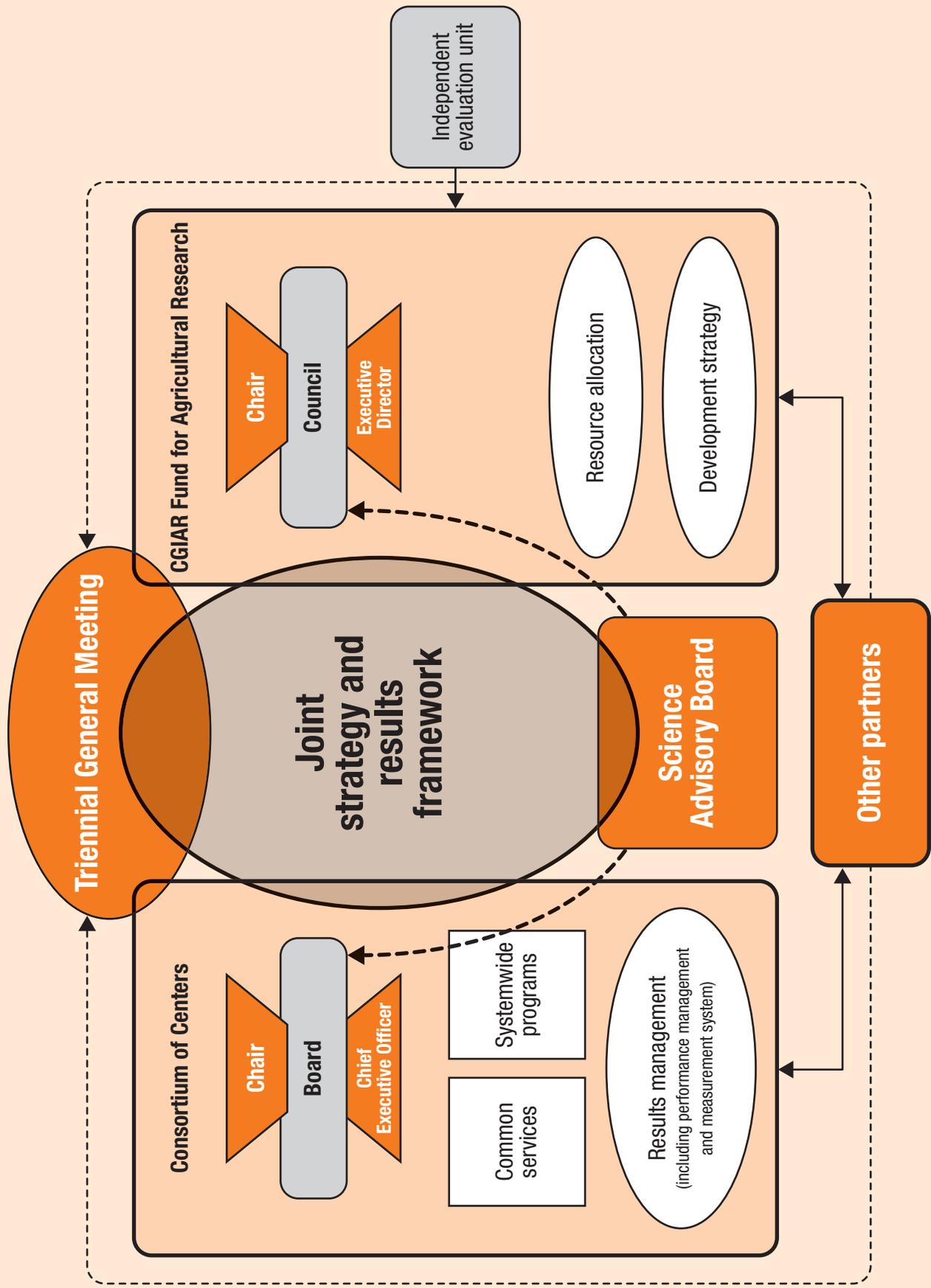
The Panel thinks that consensus decision-making is not appropriate to a body as large and complex as the CGIAR Fund. The Council of the CGIAR Fund must have proper authorities and clear, formal decisionmaking practices. It would look to the best practices of similar funds that provide concessionary financing for poverty reduction.

There are various options for secretariat support of the CGIAR Fund. The current CGIAR Director, and the parts of the CGIAR Secretariat and System that are not logically part of the operational management of the Consortium of Centers, would continue in support of the CGIAR Fund. The Secretariat would need new staff, especially for managing financial consultations, strategic planning, and performance management. The Secretariat would also need strong capabilities to review funding proposals for consistency with approved three-year strategy and results frameworks and to prepare analytical assessments of program funding proposals for review by the Council of the CGIAR Fund.

The CGIAR Director and Secretariat should provide leadership in securing financing (including new sources of funding) to meet the complementary needs of international public goods—the complementary work by national agricultural research systems (NARS), government agencies, associations,

The CGIAR Fund’s key responsibilities would be to lead funding negotiations, to maintain strong links with the development community and with research on poverty reduction, and to allocate money to programs or Centers according to agreed criteria and rules

Figure 8.1



private firms, and farmers needed to deliver those goods to the field. Acting as a catalyst to finance and to institutional and capacity strengthening for strong and effective partnerships among the CGIAR, NARS, and advanced research institutes, the CGIAR can again achieve the synergies that enabled the green revolution of the 1970s.

New ways of allocating funds

Donors would keep appropriate control of funds and of their strategic allocation through a performance-based allocation system, using best practices developed in most major international financial institutions over the past decade. The Panel envisages four distinct windows for funds.

- *Window 1—stable, long-term funding to guarantee the permanent provision of certain very high-priority international public goods.* For example, window 1 funding would ensure full financing of the Global Crop Diversity Trust through an endowment. This would support the genebanks as a permanent service to humanity (a role assigned to the CGIAR and its Centers in the International Treaty on Plant Genetic Resources for Food and Agriculture).¹
- *Window 2—multiyear, program-based, pooled funding to programs and Centers, administered by the Consortium to encourage partnerships (as in the Global Challenge Programs).* Grants from the CGIAR Fund to programs would be aligned with the CGIAR strategic objectives and would meet program-management and fiduciary requirements. Funding partnerships would be integral to program approval. Programs not aligned with the CGIAR's strategic objectives would not attract funding from the Resource Allocation Committee. Window 2 funding would give continuing support to successful programmatic initiatives associated with existing and future Challenge Programs and Systemwide

and Ecoregional Programs through Center-led consortia. Providing Consortium-level financial management for Challenge Programs would also address the Panel's concerns about financial oversight and accountability in those programs.

The CGIAR Fund would also give performance-based, unrestricted grants to Centers. Over time, such grants could become the main flow of unrestricted funds to the Centers; unlike today's grants, they would be allocated according to the CGIAR's agreed results-based strategic framework, and would be affected by a Center's performance in the preceding period.

- *Window 3—grants from bilateral and multilateral donors directly to Centers, now subject to greater transparency and policy guidance by the joint Consortium.* A long-established practice would thus, in part, continue. Full project-by-project cost recovery would be mandatory for all Centers wishing to remain members of the Consortium, and would be monitored by the Consortium. Centers would also agree to costing rules for services to third parties as a condition of Consortium membership.
- *Window 4—contributions from non-CGIAR members.* Accepting such contributions would be subject to the same rules set by the Consortium for accepting grants from CGIAR members.

The foundation of this proposal with its four windows rests on the requirement that the Centers produce a collective strategy and results framework with inputs from the Fund, the Science Advisory Body, and global partners. The strategy must address global challenges; situate and clearly establish the CGIAR comparative advantage; stipulate performance and measurement criteria standards and milestones, including those of cost-effectiveness; address means-ends linkages; and demonstrate the fiduciary and due diligence requirements for accountability. It would set

Acting as a catalyst to finance and to institutional and capacity strengthening for strong and effective partnerships among the CGIAR, NARS, and advanced research institutes, the CGIAR can again achieve the synergies that enabled the green revolution of the 1970s

The Consortium would enable the Centers to manage their common interests more coherently and strategically and provide an instrument for common services, program coordination and administration, and results-based management

out Member and donor commitments to fund the Consortium and to provide complementary programs

Assuming that the CGIAR Fund would be receiving financial resources each year that donors had committed in the previous replenishment-type negotiations, the Fund would need to match its cash flows to its grant commitments. It might do that by making unrestricted grants to Centers on a rolling three-year basis, one year firm and two indicative. The grant amounts would depend on the size of replenishments.

The aim should be to secure approximately 66 percent of CGIAR financing on a program basis to the second window. This would be consistent with the Paris Declaration donor objective of assigning that percentage of total financing on a program basis (in other words, not as project assistance) by 2010.² As donor practice is to report all contributions to multilateral organizations as program financing, a 66 percent target for the CGIAR would be consistent with current practice. Programs would be defined by the Fund every three years during replenishment-type consultations. The common “strategy and results framework,” developed jointly with the Consortium of Centers, would provide the context for program development.

All strategic programs should have a common administrative home in the Consortium of Centers in order to simplify and improve their financial management. A good approach might be to have a certain percentage of each program grant set aside for administrative, financial, and audit support by the Consortium (to be paid directly from the fund to the Consortium at the start of each program).

CGIAR donors and partners should take into consideration the financial resources required to ultimately make use of the results of CGIAR Centers’ work, the core component of the international public goods delivery system. This implies responsibility for ensuring that there is financing for the complementary component of the international public goods delivery system, which links the Centers with the national and local institutions, agencies,

firms, and farmers that put the results of Centers’ work in practice, and that have an impact in the field and on people’s lives.

The Consortium

The Centers would have a new, legally incorporated instrument, the Consortium. Centers have expertise in different areas and would continue to speak individually to those areas. But the Consortium would allow them to project a single voice in international policy forums, on broad agricultural research and development issues, and on global challenges. Centers would support the Consortium and pay for common services with fees and levies.

The Consortium would enable the Centers to manage their common interests more coherently and strategically. It would provide an instrument for common services, program coordination and administration, and results-based management. It would be governed by a board and would have a Chair and a Chief Executive Officer. It would eventually acquire enough staff for the Consortium to take over common management functions from the System Office.

The Consortium’s board would be elected by its owners in normal fashion. The Consortium’s founding charter would decide questions of equal ownership or ownership shares in proportion to the size of Centers. The Consortium’s membership could change over time, with Centers joining or departing or with other entities becoming members.

A possible set of Consortium Directors would include five eminent researchers not presently attached to a CGIAR Center, five eminent development professionals not presently attached to a CGIAR Member, and five other specialists from different partnership entities (such as the Global Forum on Agricultural Research, farmer organizations, nongovernmental organizations, or the private sector). The Chief Executive Officer, supported by staff, would manage the Consortium.

The Panel considers it essential that the Consortium be empowered to act on behalf

of the Centers under agreed delegations of authority incorporated into the Consortium's charter and bylaws. Such delegations would include differentiated requirements, with different voting majorities, for executive resolutions and for ordinary resolutions. And it would clarify what authorities remain with the individual Center boards. A task force would produce the legal incorporation document establishing the framework for the Consortium's board and the Centers' boards.

Joint institutions of the partnership

The Panel has considered what common institutions should be maintained as part of a strong partnership between the Centers (and their joint Consortium) and the proposed CGIAR Fund. It has concluded that there should be at least four:

- A joint strategy and results framework (see below), developed for the partnership's inaugural conference, and revisited thereafter as part of

multiyear financing replenishment-type negotiations.

- An independent evaluation unit, reporting to the Council of the CGIAR Fund, but working closely with the Consortium's board as well.
- A committee of eminent advisors (box 8.1) that might be called the Science Council—as now—or, perhaps, the Science Advisory Board, to emphasize its role as advisor to the entire system. (The title might be even more broad if a decision were made to include anti-poverty expertise with science expertise.)
- A set of occasions for exchanging views, ideas, findings, and information among the CGIAR Fund, the Consortium, and other partners and stakeholders on key issues related to the CGIAR. These occasions would include a Triennial General Meeting, specialized seminars, and periodic meetings of CGIAR system partners.

Box 8.1

Science and evaluation in the balanced partnership

The joint strategy and results framework for the Consortium and the CGIAR Fund will require careful monitoring by both parties, with regular evaluations focused on the quality and relevance of scientific outputs and on progress with partners toward desired outcomes and impacts. For the CGIAR Fund, an independent evaluation unit will monitor and evaluate the Consortium's practice of the strategy and progress of Fund commitments. The Consortium will work with Center leadership to develop a performance management and measurement system to guide and monitor its performance against the strategy.

In addition, both the CGIAR Fund and the Consortium will need advice on key strategic issues in international agricultural research and on emerging threats and opportunities that the CGIAR should address with other international agricultural research partners. Such advice will inform the evolution of the agreed strategy and the development of programmatic research. For example, the Consortium would need advice on strategic issues (such as biosafety and nanotechnology) and on partnerships with organizations (such as the Food and Agriculture Organization and the Intergovernmental Panel on Climate Change) that are relevant to all Centers. Individual Centers

would organize the scientific advice and partnerships needed for their specific research activities.

The Science Council now monitors, evaluates, assesses, and gives its advice on strategy and partnerships for the CGIAR System. The Panel believes that both the CGIAR Fund and the Consortium will need such a body (referred to as a Science Advisory Board in figure 8.1), and notes that it would be economical and efficient for that body to support both the CGIAR Fund and the Consortium. Clearly the present Science Council could become that body. However, the Panel recommends that it do so only if three changes are made:

- Separate advisory from monitoring and evaluation roles (as proposed above). The Science Council will focus on strategic studies, mobilizing science, and impact assessment studies—but not on monitoring and assessment for accountability.
- Improve the Science Council's advisory role for strategic studies and mobilizing science, which has been comparatively neglected.
- Establish a positive working relationship with both the Consortium and the Fund, based on a shared vision, a commitment to engagement and dialogue, and mutual trust.

CGIAR Members would be working within a governance structure more in accord with the spirit of the Paris and Monterey Declarations, which encourage harmonization and encourage Members to focus on strategy, resource allocation, and oversight rather than on ownership of projects and operations

Inaugural conference and a new reform compact

The Panel believes that no aspect of the new governance system can be decided without serious discussions between CGIAR members and donors and CGIAR-affiliated Centers. Thus, the Panel recommends an inaugural conference to agree on a new reform compact for the rebalanced partnership and on the requirements for putting it into practice. The compact would require stipulated changes, both to the Centers' past decisionmaking approaches, and also to the Members' and donors' past decisionmaking approaches.

The Members' perspective

Agreeing to the proposed rebalanced partnership would bring members five benefits:

- The CGIAR Fund would help members secure the quantum funding advances for research in agriculture and natural resource management that are demanded by the food price crisis and by the challenges of climate change.
- The strategic allocation of pooled funds would enable a programmatic approach to investments in research on agriculture and natural resource management for development.
- The balanced partnership structure would clarify authorities and increase accountability.
- The Centers' joint Consortium would relieve Members of management responsibilities. Members would thus regain time and energy to focus on joint development strategy, resource allocation, and oversight—matters that are more important and much more appropriate to them than managing Center network operations. The partnership could return to its earlier form as a forum to discuss agricultural policy and coordination.
- The World Bank would cease to have a real or perceived conflict of interest.

In exchange for these more valuable gains, members would give up certain powers. They would:

- Stop being the Centers' quasi-managers.
- Face a stronger, more confident, probably more assertive network of Centers.
- Lose some sovereignty, as the financial contributions that members had been making directly to Centers would now be partly shared in the pooled CGIAR Fund. Nevertheless, members would still exercise strategic sovereignty through their agreed resource allocation framework.

To sum up, the members would be relieved of management responsibilities and the conflicts of interest that attend them and would instead gain an appropriate instrument for results-based resource allocation, the CGIAR Fund. The pooled fund would enable members to institute, with the Consortium, a results-based framework within which to do due diligence on development value for money from the Centers—while Centers could track progress toward, and lessons learned from, joint actions and partnerships for high-level outcomes. All would be working within a governance structure more in accord with the spirit of the Paris and Monterey declarations, which encourage harmonization and encourage Members to focus on strategy, resource allocation, and oversight rather than on ownership of projects and operations.

The Centers' perspective

Agreeing to the proposed rebalanced partnership would bring Centers five benefits:

- The new focus on large regional and global challenges would allow the Centers to “up their game,” increasing their stature and relevance in the eyes of the international community.
- The new CGIAR Fund would give Centers access to a major new source of unrestricted and restricted funds. One objective would be a substantial

increase in total funding for the Centers and Programs within the first replenishment period.

- The balanced partnership would improve the Centers' comparative strategic advantage, not just by bringing them substantially increased funds, but also by giving them a single entry point and a single voice in international forums. It would "brand" the network of Centers and make its presence more coherent.
- The joint Consortium's common services would increase efficiency, reducing costs for the Centers.
- The balanced partnership would give Centers a strengthened role in the joint management of programs.

These benefits of the balanced partnership model for the common good and mission would come to the Centers only with certain tradeoffs. The Centers would:

- Cede important decisionmaking powers to the joint Consortium.
- Accept that much of the flow of unrestricted and restricted (programmatic) funding would come through the CGIAR Fund, rather than directly from individual Members—and that the Members would allocate such funds strategically, partly according to Center performance and program performance.
- Take more responsibility, individually and collectively, for financial risk management—if a Center met with serious financial difficulties, a bailout would be less likely.
- Pay significant fees and levies to the joint Consortium to cover its operations, including joint services to the Centers and program administration. The Centers might make up part or most of this money by recovering funds that they had been paying directly for System management; still, their costs might significantly increase.

Again: by clarifying and rebalancing authorities and responsibilities, the new

governance model would bring long-term benefits to all parties.

A results orientation for managing implementation and monitoring performance

To apply the principles of management for results and international public goods in the CGIAR System, the CGIAR Fund and the Consortium will need to agree on a results-based strategy—stating a vision, articulating a clear mission statement, and specifying a limited number of strategic goals for the system over 5–10 years. The results-based strategy should take into account an analysis of developing countries' needs, as well as the advantages of the Centers, Consortium, and fund over other agriculture research organizations providing international public goods.

From the new results-based strategy, a new results framework should articulate and quantify key outcomes for funders, global partners, and Centers (at the global, regional, and national levels) to achieve jointly. The key outcomes would be articulated at a high level of aggregation with measurable goals and stated targets. They would inform the new performance contracts—between the Fund and the Consortium and between the Consortium and the Centers—for managing implementation and monitoring performance.

A good results system uses as few indicators as possible—just enough for managing performance at a given level, to achieve objectives one level up. A one-entry, multiple-use information system would support senior-scientist performance management needs and underpin aggregation to high-level results reports for use by Center management and Board members. A few vital indicators would roll up from there, to report performance on progress toward CGIAR strategic objectives and crosscutting program objectives.

Considerable work will be needed to establish a systemwide CGIAR strategic framework linked to international public goods delivery systems. But that work has good prospects for yielding highly significant benefits.

The results-based strategy should take into account an analysis of developing countries' needs, as well as the advantages of the Centers, Consortium, and fund over other agriculture research organizations providing international public goods

The proposed strategic Performance Measurement System (figure 8.2) would help donors align their funding and programs toward shared desired outcomes, and it would help them harmonize their processes. It would support strategic decisions, the replenishment of the CGIAR Fund, and allocations to specific programs—supporting the funding of larger program “buckets” through performance contracts between the Consortium and Centers. An integrated system for collecting higher-level results would build trust through evidence, enabling donors to do their own reporting without returning repeatedly to the Centers for information.

The proposed system would guide the diverse work of various Centers toward common objectives. Having a results information system that cuts across Centers does not mean that the Centers will be doing the same work. Instead, different Centers—through their different outputs—will aim at shared strategic objectives: for example, food productivity increases, better policies increase poor farmers to trade internationally, or better evidence of health from higher nutrient foods.

Transition arrangements

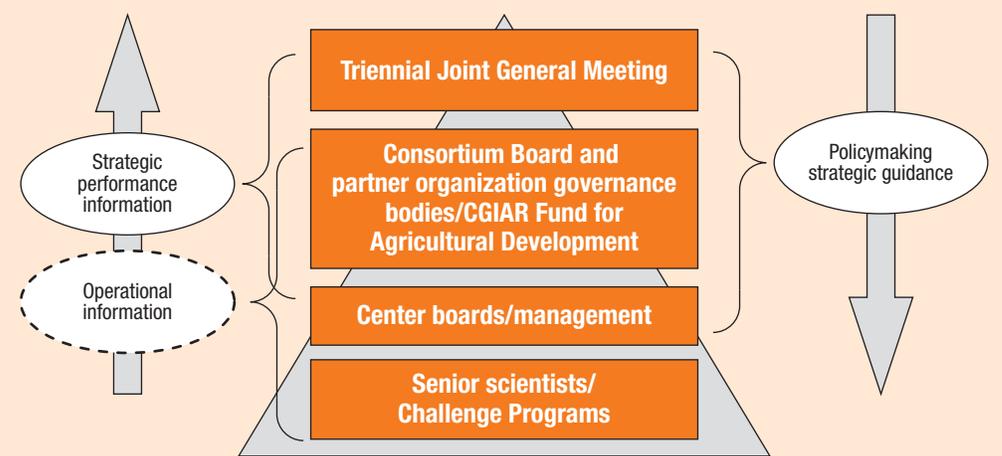
There is now a window of opportunity for reforming the CGIAR. The world food price

crisis demands immediate action. The Panel recommends making funds available to take advantage of existing programming and to advance program design—to make the most of past investments while engaging cutting-edge science.

Should the CGIAR and the Centers choose to move to a partnership structure such as that outlined in this Review, the Panel recommends an eight-month transition with two six-person task forces. One task force, led by the World Bank, would propose the details of the CGIAR Fund. The other task force, led by a chairperson designated by the Centers, would formulate the details for legal incorporation in a jurisdiction that the task force would select in consultation with the Centers. The two task forces would present their proposals at the inaugural conference for the launch of the compact.

The World Bank would be expected to take a major leadership role, in and beyond the transition, by mobilizing support and increased funding for the changed relationships and the renewed partnership. Agriculture has returned to the center of international political economy, and a revitalized CGIAR can play a major part in producing the new technologies that will be essential to food adequacy and food security in the years ahead. But the CGIAR and others must do more

Figure 8.2 A strategic Performance Measurement System for the CGIAR



Source: Independent Review Panel.

than produce needed new technologies. There must also be the capacity for adapting and applying such technologies to local conditions. The international donor community should reflect on all the factors that were required for the green revolution of the 1970s. Those factors included strong Centers in a supportive CGIAR. They also included massive, complementary investments in Asian countries to support agricultural development strategies, technology, and delivery systems, including solid support to the NARS to adapt and spread the new technologies.

Absent a return to that 1970s vision that linked the CGIAR, NARS, and advanced research institutes in a functioning, mutually supportive partnership, a restructured CGIAR will turn out to be just one more missed opportunity and a source of further frustration. It will also be a tragedy for the world's poor and vulnerable, especially in Africa.

Notes

1. The role of the CGIAR in genebanks is an explicit component of the executive safeguarding of the

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Intended to ensure the use of plant genetic resources based on the principle of easy access and exchange, the treaty is consigned by international agreement to the Food and Agriculture Organization. The treaty assigns responsibility for the world's most important gene bank collections, around 600,000 samples, to the CGIAR. However, the financing arrangements to safeguard the treaty and its components remain incomplete. The treaty has mechanism for funding genetic resource collections: the Global Crop Diversity Trust set up jointly by the Food and Agriculture Organization and the CGIAR. To date the trust has raised funding pledges of more than \$140 million. Of this, more than \$100 million is in an endowment, generating an annual income of about \$4.5 million. The target for the endowment, however, was \$260 million, leaving a large gap in the financing required to ensure the safeguarding and continuous development of this international public good. The result is that implementation of the treaty depends on annual donor contributions. This situation is at fundamental variance with the nature of international public goods. Financing for these international public goods should be guaranteed, based on a careful study of recurrent cost requirements, and considered independently of arrangements for other international public goods and activities the CGIAR performs. A possible approach to strengthen the Global Crop Diversity Trust and close the financing gap could be through an annual assessed contribution of all signatory countries to the Treaty. The CGIAR's Systemwide Genetic Resources Program highlights the genebank's financing gap in its July 2008 paper "Mapping Our Future: Sustaining CGIAR's Genebanks for greater Impact" (SGRP 2008).

2. OECD/DAC (n.d.) Indicators of Progress.

The CGIAR System

History

The Consultative Group on International Agricultural Research (CGIAR) was created in 1971 as an informal association of donors. Supporting four international agricultural research Centers that the Ford and Rockefeller Foundations had established previously, the CGIAR was to serve “both as a mechanism for coordinating donor policies and actions and as an informal forum for discussion.”¹ Because the founding donors wanted the CGIAR to have an informal character, they created it without a charter, rules of procedure, or bylaws governing membership. Decisionmaking was to be by consensus.²

Since the CGIAR’s inception its membership has grown (from 17 to 64), and there are now 15 CGIAR-supported Centers (down from a high of 18). The research agenda has become more complex, and attention to stakeholder input has increased. As a result, the CGIAR System has become more complex than it was earlier, with multiple layers of committees and service units supporting it.

Mission

The current mission of the CGIAR is “to achieve sustainable food security and to reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.”³

Each Center has its own mission statement that reflects its work.

Governing Principles

Six governing principles have formed the basis of the CGIAR since its founding:

- Member sovereignty.
- Center autonomy.
- Independent scientific advice.
- Consensus decisionmaking.
- Informal status (the only legal entities are the 15 independent Centers).
- Nonpolitical nature.

Membership

The CGIAR currently includes 64 Members: 25 developing countries, 22 industrialized countries, 4 private foundations, and 13 regional and international organizations (table A1.1).

After a significant expansion of Members in the 1990s, notably from developing countries, membership has stabilized in recent years. Since 2001, there have been only six new Members (Israel, Malaysia, Morocco, Turkey, the Syngenta Foundation for Sustainable Agriculture, and the Gulf Cooperation Council). Over the years, two Members (Leverhulme Foundation and Saudi Arabia) have officially left the CGIAR.

To be a Member, a Member must agree to:

- Support the mission and objectives of the CGIAR.
- Participate in the deliberations of the CGIAR.
- Serve on its committees.
- Make a minimum yearly cash contribution of \$500,000 toward supporting CGIAR-approved research programs or CGIAR System governance mechanisms.

In 2006, 15 Members had the status of “Member-observers” because they had not paid their minimum contributions for the previous two calendar years. In 2007 there were 11 Member-observers.⁴ Member-observers may

Table A1.1 CGIAR Members

Countries	Australia, Austria, Bangladesh, Belgium, Brazil, Canada, China, Colombia, Côte d'Ivoire, Denmark, Egypt, Finland, France, Germany, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Kenya, Korea, Luxembourg, Malaysia, Mexico, Morocco, The Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, The Philippines, Portugal, Republic of South Africa, Romania, Russian Federation, Spain, Sweden, Switzerland, Syrian Arab Republic, Thailand, Turkey, Uganda, United Kingdom, United States
Foundations	Ford Foundation, Kellogg Foundation, Rockefeller Foundation, Syngenta Foundation for Sustainable Agriculture
Organizations	African Development Bank, Arab Fund for Economic and Social Development, Asian Development Bank, European Commission, Food and Agriculture Organization of the United Nations, Gulf Cooperation Council, Inter-American Development Bank, International Development Research Centre, International Fund for Agricultural Development, OPEC Fund for International Development, United Nations Development Program, United Nations Environment Programme, World Bank

Source: CGIAR Secretariat.

attend the Annual General Meeting and participate in face-to-face and virtual discussions, but may not participate in decisionmaking nor sit on the Executive Council. As a result, in 2006–07, 40 percent of developing country Members effectively could not participate in CGIAR governance. To recognize the importance of the voices of developing countries in CGIAR governance, the CGIAR's Third System Review in 1998 recommended that the CGIAR officially recognize in-kind contributions.⁵ So far, in-kind contributions are not counted toward membership contributions.

The President of the World Bank nominates the CGIAR's Chair. Since 1974, the Chair has been a World Bank Vice President or Senior Vice President in charge of agriculture.

Among the CGIAR's Members, the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the United Nations Development Programme (UNDP), and the World Bank are CGIAR cosponsors.⁶

The CGIAR's Charter states that cosponsors provide the Chair with continuity, strengthen the international character of the CGIAR System, and serve as an informal policy advisory group to the Chair. Cosponsors also are intended to "assist the CGIAR in crisis management, should the need arise."⁷

The System

The CGIAR does not exist as a formal organization. It is an informal network of

independent institutions (Members and Centers) that have agreed to work together around a mutually accepted mission.

The network refers to itself as the "CGIAR System" (box A1.1). Its chief parts are:

- The Consultative Group on International Agricultural Research (the Members).
- The Science Council, which provides independent scientific advice to the Consultative Group.
- The 15 independent international agricultural research centers (the Centers).

These independent parts of the system are supported by the Executive Council (ExCo), various standing committees, and the System Office (a group of service units).

The ExCo of the CGIAR is chiefly a committee of shareholders (Members), expanded to include stakeholders. Industrial and developing country Members are represented equally. The ExCo also includes a seat for the Science Council Chair, an Alliance representative, the Global Forum on Agricultural Research, and one representative each from civil society and from the private sector (who serve as full members).

In 2005, the CGIAR Centers formed an Alliance to strengthen and guide their collective work.⁸ The Board Chairs of all 15 Centers sit on the Alliance Board, and the Centers' Directors General form an Alliance Executive.

The CGIAR's two advisory committees are the Science Council and the Genetic Resources Policy Committee. Its two partnership

Box A1.1 Is the CGIAR a “System”?

Calling the CGIAR a “System” is somewhat misleading. It assumes that the different entities interact in organized or coherent ways—and that they are organized to heighten interactions, positive feedback, and production. It also implies that there is one identifiable central authority with some semblance of a legal personality. That is not the case with the CGIAR, which has no one cognitive structure or legal personality. Other defining features of systems include shared objectives and concrete performance measures—none of which the CGIAR has. The CGIAR is a group, not a system.

Table A1.2 CGIAR System active standing committees, 1997–2007

Committee	1997	2003	2007
CGIAR Executive		Executive Council (ExCo)	ExCo
Oversight	Finance Committee	ExCo Finance Committee	
	Oversight Committee	ExCo Program Committee	
Advisory	Technical Advisory Committee	Science Council	Science Council
	Genetic Resources Policy Committee (GRPC)	GRPC	GRPC
Partnership	NGO Committee (NGOC)	NGOC	
	Private Sector Committee (PSC)	PSC	PSC
Centers	Center Directors' Committee (CDC)	CDC	Alliance Executive
	Committee of Board Chairs (CBC)	CBC	Alliance Board
Other	Impact Assessment Evaluation Group (IAEG)		
	Public Awareness and Resource Mobilization Committee (PARC)	PARC	

Source: Strong et al. 1998; World Bank 2003; www.cgiar.org.

committees have been the Private Sector Committee and the NGO Committee (though the latter was dissolved in 2006).⁹ The Group or the ExCo also create ad hoc committees on particular issues when needed.

In 1998 the Third System Review called for streamlining the CGIAR’s committee structure. Indeed, there are fewer standing committees today than there were in 1997 (table A1.2). Since 1998 the only addition to the standing committee structure has been the ExCo.¹⁰ There are no longer standing committees on oversight, programs, or finance. A Science Council replaced the Technical Advisory Committee. The NGO Committee, inactive since 2002, was dissolved in 2006. The Alliance Executive replaced the Center Directors’ Committee (CDC), and the Alliance Board replaced the Committee of Board Chairs (CBC). The Impact Assessment and

Evaluation Group (IAEG) is now part of the Science Council, as is the Standing Panel on Impact Assessment (SPIA). The Public Awareness and Resource Mobilization Committee (PARC) no longer exists.

With the elimination of some CGIAR standing committees, important functions of the CGIAR cannot be carried out. Dissolving the ExCo Finance and Program Committees left the System without enough financial oversight. That is why, at the 2007 Annual General Meeting, the CGIAR decided to create an ad hoc Finance Committee of the ExCo.¹¹

Communications used to be a responsibility of the now defunct PARC. There has been a consolidation of communication functions within the CGIAR Secretariat over the past year. Outreach to media has been successful, but more strategic uses of communications

and social marketing throughout the CGIAR System are possible.

Following recommendations from the 2001 Change Design and Management process, the CGIAR established the CGIAR System Office in that year. The virtual office includes nine units:

- The CGIAR Secretariat (hosted by the World Bank).
- The Science Council Secretariat (hosted by the FAO).
- The Alliance Office (currently hosted by the IFAD).
- The Central Advisory Service on Intellectual Property (hosted by Bioversity).
- The Chief Information Office/Information and Communication Technology–Knowledge Management (hosted by Bioversity).
- The Gender and Diversity (hosted by the World Agroforestry Centre).
- The Strategic Advisory Service for Human Resources (no host Center identified at the time of this writing; previously hosted by WorldFish).
- The Internal Audit (hosted by IRRI).
- The Media Unit (hosted by ILRI).

Some of these units predate 2001. To enhance the efficiency, responsiveness, and overall performance of each unit, the CGIAR's System Office brought them together.

At its 2007 Annual General Meeting, the CGIAR decided on the following changes to the System Office:

- Transform the Gender and Diversity Program into a systemwide program.
- Transfer the Human Resource unit's function to the CGIAR Secretariat.
- Remove the Science Council Secretariat from the System Office.
- Transfer the Media Unit into the Communications Team (CGIAR Secretariat).

Conducting business

The CGIAR conducts its business at an Annual General Meeting, usually in early

December, and through the ExCo. The ExCo meets semi-annually and—when decision-making authority has been delegated to the ExCo on specific matters—acts for the CGIAR between meetings on matters delegated to it.

Decisions taken at the Annual General Meeting and at ExCo meetings are nonbinding. According to the Charter, “[d]ecisions reached by the CGIAR have the force of commitment to the mission and objectives of the Group, though the CGIAR has no legal status. The Group's decisions do not preempt policymaking on the same issue by sovereign governments or other institutions whose representatives form the CGIAR.”¹²

Overall CGIAR funding

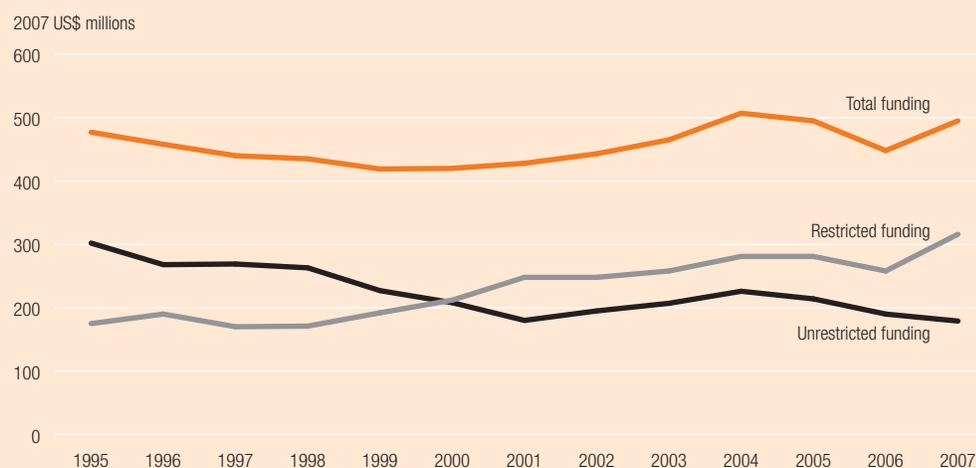
In 2007, the overall research agenda of the CGIAR (Centers and Challenge Programs) received \$495 million in funding. Other sources of revenue, such as interest, produced an additional \$25 million, for a total of \$520 million (figure A1.1). Of the \$495 million in contributions, CGIAR Members contributed \$437 million (88.4 percent). Nonmembers contributed the remaining \$57 million (11.6 percent).

While overall funding has continued to increase nominally over the years, the buying power of Centers has remained fairly flat when adjustments are made for inflation. Meanwhile the research agenda has expanded—for example, to Challenge Programs. Thus, the Centers (and their partners) are being asked to do more with less.

The quality and quantity of funds are in question. The share of all funding that is project-based (restricted) has risen in recent years. In 2007, 36 percent of total funds were considered unrestricted and the remaining 64 percent were restricted. That is almost an exact inversion of the situation in 1995, when 63 percent of funds were unrestricted and 37 percent were restricted.

The European Community, the United States, the World Bank, and the United Kingdom were the four largest contributors to the CGIAR in 2007, with Canada a somewhat

Figure A1.1 Restricted and unrestricted funding for CGIAR



Source: CGIAR Financial Reports 1995–2007 adjusted for inflation index, 2007 base.

Table A1.3 Nonmember funding by Center, 2007

Center	Percent of total funding outcome
Africa Rice Centre	4.9
Bioversity	4.4
CIAT	11.5
CIFOR	7.1
CIMMYT	21.5
CIP	13.1
ICARDA	2.5
ICRISAT	11.2
IFPRI	15.9
IITA	12.6
ILRI	8.2
IRRI	5.2
IWMI	3.0
World Agroforestry	19.0
WorldFish	5.3

Source: 2007 CGIAR Financial Report.

distant fifth.¹³ Together, these five donors accounted for exactly half of all contributions to the CGIAR’s research agenda in 2007. Contributions from developing country Members made up 3 percent of overall funding.

Contributions from nonmembers have risen steadily over the past few years. The \$57 million contributed by nonmembers in 2007 is a marked increase over the \$4.6 million in

1992. For 2008 CGIAR Centers received \$106 million in grants from the Bill & Melinda Gates Foundation, to be disbursed over three years. The foundation will rank among the top 10 contributors to the CGIAR despite not being a Member. This ranking will likely persist until the end of the grant period.¹⁴

Nonmember funding varies widely across Centers. At the extremes, 22 percent of 2007 funds for CIMMYT came from nonmembers, while nonmembers provided only 2.5 percent of funds for ICARDA (table A1.3).

The work of the CGIAR Centers

The CGIAR currently supports 15 international agricultural research Centers. Except for two, all are in developing countries. For analysis, they can be distinguished according to their mandates and so clustered into four groups: commodity Centers, ecoregional Centers, natural resource management Centers, and policy Centers (table A1.4).¹⁵

Locations of CGIAR regional and country offices

Collectively, the 15 Centers have some 203 regional or country offices in 68 countries worldwide (table A1.5). Seventy-five percent of all regional or country offices are in Sub-

Table 2.1 The Consultative Group on International Agricultural Research Centers

Center	Headquarters' location	Year established	Year joined CGIAR	2007 funding outcome (US\$ millions)	Mandate
Commodity Centers					
Africa Rice Centre (WARDA)	Cotonou, Benin	1970	1975	10.2	Rice production in West Africa
International Maize and Wheat Improvement Center (CIMMYT)	Mexico City, Mexico	1966	1971	43.3	Wheat, maize, triticale
International Potato Center (CIP)	Lima, Peru	1970	1973	26.0	Potato, sweet potato
International Livestock Research Institute (ILRI)	Nairobi, Kenya	1995 ^a	1995	35.2	Livestock diseases, cattle, sheep, goats, feed and production systems
International Rice Research Institute (IRRI)	Los Banos, Philippines	1960	1971	32.5	Rice and rice-based ecosystems
Ecoregional Centers					
International Center for Tropical Agriculture (CIAT)	Cali, Colombia	1967	1971	45.1	Beans, cassava, tropical forages, rice, hillsides, forest margins, savannas
International Center for Agricultural Research in the Dry Areas (ICARDA)	Aleppo, Syria	1975	1975	27.7	Barley, lentils, fava beans, durum and bread wheats, chickpeas, pasture and forage legumes; small ruminants; on-farm water management; rangelands
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	Patancheru, India	1972	1972	37.4	Sorghum, pearl millet, finger millet, chickpea, pigeon pea, groundnut; sustainable production systems for the semi-arid tropics
International Institute of Tropical Agriculture (IITA)	Ibadan, Nigeria	1967	1971	45.1	Soybean, maize, cassava, cowpea, banana, plantain, yams; sustainable production systems for the humid lowland tropics
Natural resource management Centers					
Center for International Forestry Research (CIFOR)	Bogor, Indonesia	1993	1993	18.2	Sustainable forestry management
International Water Management Institute (IWMI) ^b	Colombo, Sri Lanka	1984	1991	23.5	Irrigation and water resource management
World Agroforestry ^c	Nairobi, Kenya	1977	1991	31.5	Agroforestry; multipurpose trees
WorldFish ^d	Penang, Malaysia	1977	1992	15.1	Sustainable aquatic resource management
Policy Centers					
Biodiversity ^e	Rome, Italy	1974	1974	39.0	Plant genetic resources of crops and forages; collection and gene pool conservation
International Food Policy Research Institute (IFPRI)	Washington, DC, United States	1974	1980	46.4	Socioeconomic research related to agricultural development

a. Created in 1995 through the merger of the International Laboratory for Research on Animal Diseases (established in 1973) and the International Livestock Center for Africa (established in 1974).

b. Formerly the International Irrigation Management Institute (IIMI)

c. Formerly the International Centre for Research on Agroforestry (ICRAF)

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

e. Formerly the International Plant Genetic Resources Institute (IPGRI), and previous to that, the International Board on Plant Genetic Resources (IBPGR).

Source: OED 2003; www.cgiar.org; CGIAR Secretariat.

Saharan Africa (41 percent) and East Asia and the Pacific (34 percent). All Centers have offices in Sub-Saharan Africa, and 13 have offices in East Asia and the Pacific. Only six Centers are in either Latin America or Central and West Asia and North Africa.

Of the 203 regional or country offices throughout the world, Centers indicate just over half share facilities, services, or resources

with, or are hosted by, other CGIAR Centers or national research partners.

CGIAR Center staff

In 2008, the Centers collectively employ 7,716 staff, of whom 2 percent are managers and 13 percent are scientists (table A1.7). Total scientific and technical staff represent 43 percent

Table A1.5 Numbers of CGIAR Centers, regional offices, and countries by region

Region	Centers with Regional Offices	Regional Offices	Countries	Locations
Sub-Saharan Africa	15	84	21	Benin, Burkina Faso, Cameroon, Democratic Republic of Congo, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe
East Asia and the Pacific	13	69	19	Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, People's Democratic Republic of Korea, Republic of Korea, Lao PDR, Malaysia, Myanmar, Nepal, New Caledonia, Philippines, Solomon Islands, Sri Lanka, Thailand, Vietnam
Central and West Asia and North Africa	6	27	16	Afghanistan, Egypt, Georgia, Iran, Jordan, Kazakhstan, Lebanon, Morocco, Oman, Pakistan, Syria, Tunisia, Turkey, United Arab Emirates, Uzbekistan, Yemen
Latin America	6	16	8	Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Peru
Europe and North America	3	7	4	Belgium, France, Italy, United States
Total	93	203	68	

Source: Personal communication with Center staff.

Table A1.6 Numbers of CGIAR regional and country offices, combined, by region

Center	Africa	East Asia and the Pacific	Central and West Asia and North Africa	Latin America	Europe and North America	Total
Africa Rice	5	0	0	0	0	5
Bioversity	4	4	2	2	3	15
CIAT	6	3	0	4	3	16
CIFOR	6	3	0	2	0	11
CIMMYT	3	4	5	2	0	14
CIP	5	9	1	3	0	18
ICARDA	1	1	16	0	0	18
ICRISAT	5	2	0	0	0	7
IFPRI	5	2	0	0	1	8
IITA	11	0	0	0	0	11
ILRI	6	5	0	0	0	11
IRRI	3	12	0	0	0	15
IWMI	4	9	2	0	0	15
World Agroforestry	16	7	0	3	0	26
WorldFish	4	8	1	0	0	13

Source: Personal communication with Center staff.

of all employees. Most staff are from Group 2 countries (Eastern Europe and Central Asia, East Asia and the Pacific, Latin America and the Caribbean, Middle East and North Africa, South Asia, and Sub-Saharan Africa). The share of women in management positions has fallen since 2003; but the share of women in science positions has risen, and the total share of women in management and science positions combined has risen. Similarly,

diversity (staff from Group 2 countries) has fallen among managers, though it has risen among scientists.

CGIAR Center public goods assets

Eleven CGIAR Centers collectively hold over 650,000 samples of crop, forage, and agroforestry genetic resources in the public domain. These germplasm collections are

Table A1.7 Gender and diversity in CGIAR Centers' staffing, 2003 and 2008

Grouping	Total		Managers		Scientists	
	2003	2008	2003	2008	2003	2008
Total	7,651	7,716	146	136	925	1,020
Women	2,057 (27%)	2,225 (29%)	13 (9%)	25 (18%)	182 (20%)	267 (26%)
Group 2 countries	6,843 (89%)	7,095 (92%)	67 (46%)	48 (35%)	533 (58%)	675 (66%)

Note: The human resources survey conducted by the Gender and Diversity Program used the following definitions: *management* is the level of management immediately below Director General. It includes Deputy Directors General, Challenge Program Leaders, Directors of major programs, research program heads, and heads of administration; *scientists* are those who initiate, develop, lead and carry out science projects, and who initiate, develop and sustain partnerships with their Center's partners. It includes scientists ranging in rank from Post-Doctoral Fellow to Principal Scientist; *Region 2* refers to Eastern Europe and Central Asia, East Asia and the Pacific, South Asia, Latin America and the Caribbean, Middle East and North Africa, and Sub-Saharan Africa. We have paraphrased this definition to call it *developing countries*.

Source: Gender and Diversity Program, 2008, Report on the CGIAR human resources survey 2008.

held in trust for humanity through the International Treaty on Plant Genetic Resources for Food and Agriculture. The Treaty recognizes the CGIAR Centers' collections as a central pillar of global conservation efforts. The collections, among the world's largest, are arguably the most important anywhere for addressing global food security and poverty alleviation. A global public good, they are available to all researchers.

The Centers' germplasm collections are complemented by several networks and databases operated by the Centers. They include, among others, the Systemwide Information Network for Genetic Resources (SINGER), the International Crop Information System (ICIS), and the Agricultural Science and Technology Indicators (ASTI) initiative. Two other CGIAR-supported databases, related to fisheries and coral reefs, are FishBase and ReefBase.

CGIAR Center governance

Each Center is an independent legal entity with its own governing board. In 2006, there were 188 board members across the 15 Centers. Of those, 59 percent came from developing countries, and 34 percent were women.¹⁶ The Boards of Trustees of the individual Centers meet independently on a schedule set in each Center's bylaws.

The Alliance of CGIAR Centers conducts business through biannual meetings of the Alliance Board and the Alliance Executive.

The Board and Executive meet both separately and together. Decisions of the Alliance are made by consensus where possible, by vote when necessary. Alliance decisions are binding.¹⁷

CGIAR Center funding

In 2007, IFPRI had the largest budget of any of the CGIAR's 15 Centers (\$46.4 million); Africa Rice had the smallest (\$10.2 million). Table A1.8 shows how overall funds were distributed among the Centers. In 2007 the ecoregional Centers accounted for the largest share (32.7 percent) of total funds.

Collectively, however, the commodity Centers have seen their share of overall funds fall since 2001, while the other three groups of Centers have seen their shares rise. Eight Centers saw their individual shares (percentages) of overall funds rise between 2001 and 2007: Bioversity, CIAT, CIFOR, ICRISAT, IFPRI, ILRI, IWMI, and World Agroforestry.

Center research and the CGIAR research agenda

In 2005, after an in-depth consultative process, the Science Council presented 20 system priorities for the CGIAR System for 2005–15. The 20 priorities are clustered in five major areas:

- Priority Area 1, sustaining biodiversity for current and future generations.

Table A1.8 Funding by Center in 1992, 2001, and 2007 as a percentage of CGIAR's total funding

Center	1992	2001	2007
Commodity Centers	41.1	36.7	30.9
Africa Rice	3.0	2.7	2.1
CIMMYT	9.8	11.9	9.1
CIP	6.5	5.7	5.5
ILRI	8.9	7.3	7.4
IRRI	12.9	9.2	6.8
Ecoregional Centers	37.8	30.4	32.7
CIAT	10.1	8.3	9.5
ICARDA	5.7	6.4	5.8
ICRISAT	10.8	6.2	7.9
IITA	11.2	9.6	9.5
Natural resource management Centers	9.8	17.2	18.5
CIFOR	1.0	3.7	3.8
IWMI	2.8	3.3	4.9
World Agroforestry	3.9	6.5	6.6
WorldFish	2.1	3.7	3.2
Policy Centers	11.2	15.7	17.9
Biodiversity	3.9	6.7	8.2
IFPRI	4.1	6.6	9.7
ISNAR	3.3	2.4	n/a

n/a is not applicable.

Source: World Bank 2003; CGIAR Financial Reports.

- Priority Area 2, producing more and better food at lower costs through genetic improvement.
- Priority Area 3, reducing rural poverty through agricultural diversification and emerging opportunities for high-value commodities and products.
- Priority Area 4, promoting poverty alleviation and sustainable management of water, land, and forest resources.
- Priority Area 5, improving policies and facilitating institutional innovation to support sustainable reduction of poverty and hunger.

The Science Council also stated, however, that up to 20 percent of Center research should be in frontier research, stand-alone training, and development activities (all of which are outside the five priority areas).

The System Priorities are now being supplanted by a small set of broader, more results-oriented strategic objectives as part of the CGIAR's Change Management initiative. Still, the older System Priorities usefully represent the Centers' collective core competencies.

In 2007, the Centers' Medium Term Plans collectively showed 137 major project areas, including individual Center projects, Challenge Programs and systemwide programs.¹⁸

In 2007 genetic improvement represented the largest percentage of overall Center expenditures (24 percent), followed by policies and institutional innovation (23 percent), integrated natural resource management (22 percent), sustaining biodiversity (12 percent), and diversification and high-value commodities (11 percent; table A1.9). Nonpriority areas accounted for only about 7 percent of total expenditures. The accuracy of this representation

Table A1.9 Centers' expenditure by priority area, 2007

System priority area	US\$ millions	Percent of total
Sustaining biodiversity	60	12.3
Genetic improvement	118	24.1
Diversification and high-value commodities	54	11.0
Integrated natural resource management	109	22.3
Policies and institutional innovation	112	22.9
Subtotal	453	92.6
Development activities	14	2.9
Standalone training	9	1.8
New research areas	13	2.7
Subtotal	36	7.4
Total	489	100

Source: 2008 Financing Plan.

of Centers' work is unclear. Also unclear is whether Centers have been reluctant to characterize expenditures as nonpriority.

In 2007, 77 percent of total CGIAR investments were directed at Sub-Saharan Africa and Asia (table A1.10). Investments in Sub-Saharan Africa have grown steadily, from 39 percent of the total in 1992 to 48 percent in 2007.

Systemwide and ecoregional programs

Besides research undertaken by individual Centers, CGIAR research also includes inter-

Center and systemwide programs. There are now 17 such programs (table A1.11).

Besides these, the Centers also collaborate on a handful of other initiatives such as the Systemwide Information Network for Genetic Resources and the Consortium for Spatial Information.

CGIAR Challenge Programs

Following a recommendation from the 2001 Change Design and Management Team, the CGIAR created Challenge Programs for collaborative research in 2003. A CGIAR Challenge Program is a "time-bound, independently-governed program of high-impact research that targets the CGIAR goals in relation to complex issues of overwhelming global and/or regional significance, and requires partnerships among a wide range of institutions in order to deliver its products."¹⁹ Challenge Programs were added to the existing work and financing of the Centers. The Change Design and Management Team envisioned that within five years, CGIAR financing would expand significantly and Challenge Programs would account for 50 percent of overall CGIAR financing.²⁰

Initially, the CGIAR launched three Challenge Programs: Water and Food, Generation, and HarvestPlus. At its 2004 Annual General Meeting, the CGIAR approved a fourth Challenge Program, Sub-Saharan Africa. All four are now under way (table A1.12). In May 2008 ExCo approved a fifth

Table A1.10 CGIAR investments by region

Percent of total

Region	1992	2001	2002	2003	2004	2005	2006	2007
Sub-Saharan Africa	39	43	43	45	45	47	46	48
Asia	33	31	33	32	32	32	30	29
Latin America and the Caribbean	16	17	15	14	14	12	14	13
Central and West Asia and North Africa	12	9	9	9	9	9	10	10

Note: Percentages restated in 2007 to exclude Challenge Program partner expenses.
Source: 2007 CGIAR Annual Report; CGIAR Secretariat; World Bank 2003.

Table A1.11 Systemwide and Ecoregional Programs

Program	Convening Center
Alternatives to Slash and Burn	World Agroforestry Centre
Global Mountain Program	CIP
African Highlands Initiative	World Agroforestry Centre
Collaborative Research Program for Sustainable Agricultural Development in Central Asia and the Caucasus	ICARDA
Desert Margins Program	ICRISAT
Rice-Wheat Consortium for the Indo-Gangetic Plains	CIMMYT
Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN)	CIP
Systemwide Initiative on Urban and Periurban Agriculture	CIP
Consortium for the Sustainable Use of Inland Valley Agroecosystems in Sub-Saharan Africa	Africa Rice Centre
Participatory Research and Gender Analysis	CIAT
Systemwide Initiative on HIV/AIDS	Africa Rice Centre
Systemwide Initiative on Water Management	IWMI
Systemwide Genetic Resources Program	Biodiversity
Systemwide Livestock Program	ILRI
Systemwide Program on IPM	CIP
Systemwide Program on Collective Action and Property Rights	IFPRI
Systemwide Program on Malaria and Agriculture	IWMI

Source: <http://www.cgiar.org>.

Table A1.12 Challenge Program project summaries

Challenge Program	Convening Center/ organization	Year established	Focus
Generation	CIMMYT	2003	To use plant genetic diversity, advanced genomic science, and comparative biology to develop tools and technologies that help plant breeders in the developing world produce better crop varieties for resource-poor farmers.
HarvestPlus	CIAT, IFPRI	2003	To improve human nutrition by breeding, through a process called biofortification, new varieties of staple food crops consumed by the poor that have higher levels of micronutrients.
Sub-Saharan Africa	FARA	2003	To address the most significant constraints to reviving agriculture in Africa—failures of agricultural markets, inappropriate policies, and natural resource degradation—with a new paradigm, Integrated Agricultural Research for Development.
Water and Food	IWMI	2004	To improve the productivity of water in river basins in ways that are pro-poor, gender equitable and environmentally sustainable

Source: <http://www.cgiar.org>.

Challenge Program, on Climate Change, for development.

With the exception of the Sub-Saharan Africa Challenge Program, which is convened by the Forum for Agricultural Research in

Africa (FARA), a different CGIAR Center convenes each program. Each Challenge Program has an independent governing board.

The CGIAR reports that revenues for the Challenge Programs totaled \$48 million in

2007. (CGIAR practice is to count revenue only when the funds have been spent.) Such revenues over the history of the Challenge Programs are shown in table A1.13. Challenge Program financing can also be viewed based on cash receipts recorded in total by the convening Center each year. In this way, table A1.14 reflects actual funding available to the individual programs from 2004–07.

The Challenge Programs have certainly brought new funding to the CGIAR. But how much is unclear—indeed it is nearly impossible to see. For example, although funding to the Challenge Programs by the Gates Foundation is clearly new funding, some donors (for example, the World Bank) appear to have shifted at least part of their contributions away from Centers to Challenge Programs.

The character of the CGIAR

The CGIAR is characterized by complexity, with many institutions in different countries of different ages and with different cultures, purposes, and focuses. This complex institutional arrangement has evolved over 37 years.

Another characteristic of the CGIAR is uncertainty—especially about funding and, hence, about the reform agenda of the past decade. These uncertainties are further associated with major changes in the CGIAR’s external context. With the continuous search for change, an aura of uncertainty surrounds the future of the CGIAR.

On the whole, the CGIAR today is characterized by increasing complexity, both cognitive and structural; by diversity in its membership, its funding, and its organization; and by an increasing uncertainty associated with changes in its internal and external environments.

Notes

1. CGIAR Secretariat (2007b), p. 2.
2. CGIAR Secretariat (2007b).
3. The current mission statement was adopted at the CGIAR’s Mid-Term Meeting in Dresden in 2000.
4. In 2006, the following Members were not in good standing: African Development Bank, Bangladesh, Côte d’Ivoire, Gulf Cooperation Council, Indonesia, Inter-American Development Bank, Kellogg Foundation, Malaysia, Pakistan, Philippines, Portugal, Romania, Russian Federation, Thailand, and Uganda. In 2007, all but four (African Development Bank, Gulf Cooperation

Table A1.13 Revenue reported by the CGIAR, for all Challenge Programs

\$ millions	2004	2005	2006	2007
CGIAR	14	25	29	31
Partners	5	10	11	17
Total	19	35	40	48

Note: Total revenue and expenditures are not reported in aggregate for 2003 (only-cash basis receipts are reported).

Source: CGIAR Financial Reports, 2004–2007.

Table A1.14 Funding available to Challenge Programs, 2003–07

Percentage of total	2004	2005	2006	2007
Generation	19.1	13.6	9.5	23.5
HarvestPlus	3.9	15.5	12.1	19.6
Sub-Saharan Africa	4.7	0	3.5	7.8
Water and Food	9.4	9.3	8.4	17.1
Total	37.1	38.4	33.6	68.0

Source: CGIAR Financial Reports, 2004–2007.

Council, Portugal, and Uganda) were still in arrears and remained in Member-observer status. Source: CGIAR Secretariat.

5. Strong et al. (1998).
6. The World Bank, FAO, and UNDP were founding cosponsors. From 1994–2000, the United Nations Environment Programme was also a cosponsor. IFAD became a cosponsor in 2001.
7. CGIAR Secretariat (2007b), p. 37.
8. In 1998, the Centers created the Future Harvest Foundation as a nonprofit corporation in an effort to reach out to new constituencies and increase the funding base of the Centers and their strategic work. The Future Harvest Foundation was dissolved in 2004.
9. Engagement with civil society now takes place through dialogue processes and ad hoc representation at CGIAR meetings.
10. There have been a small number of new committees added at various times, that were then eliminated. For example, the Consultative Council, following the Third System Review, and the Science Partnership Committee.
11. The ad hoc Committee on Finance was created at the 2007 Annual General Meeting, with the agreement that it would exist until December 31, 2008.
12. CGIAR (2007b), p. 20.
13. Note that the EC contribution is somewhat distorted, in that a large part of its 2006 contribution was disbursed and recorded in 2007.
14. Note that the CGIAR reports funding during the year it is expensed, so it appears that the Gates Foundation contributed \$23 million in 2007. However, the Gates Foundation actually made cash contributions to the Centers in the amount of \$43 million.
15. We have chosen here to use the same classification as the 2003 World Bank Operations Evaluation Department's Meta-Evaluation. This will facilitate analysis of trends in programming and financing over time.
16. CGIAR (2007a).
17. Future Harvest (2006).
18. CGIAR Secretariat. (2007c).
19. Interim Executive Council (2001a).
20. Change Design and Management Team.

Impact of CGIAR research

Since 2001, the CGIAR has invested substantially in assessing its impact through the Science Council's Standing Panel on Impact Assessment (SPIA). SPIA has commissioned three studies over the past five years that have quantified the impacts of the CGIAR at the global and regional levels. These studies find that the benefits from past investments in CGIAR research have exceeded the costs of that research—usually by a large margin.

Raitzer (2003) provides the only comprehensive assessment of the relative benefits and costs of CGIAR research investments over the System's lifetime. This meta-analysis reviewed all available ex post impact assessments from peer-reviewed journal articles, books, and Center publications, to estimate the total benefits attributable to the CGIAR. Only studies that were published after 1989, covering middle- or low-income countries and generating total benefits exceeding \$50 million, were considered. A rating scale was developed—based on the transparency of analytical methods, the extent to which causality was demonstrated, the plausibility of counterfactuals, and the degree to which estimated impacts were projected beyond the time frame analyzed—to establish a range of estimated benefits. Benefit scenarios ranged from the most conservative (“substantially demonstrated and empirically attributed”) to the least conservative (“plausible, extrapolated to 2011”). For each of these five scenarios, benefits were compared with total systemwide expenditures (\$7.1 billion in 1990 dollars) dating back to 1960.¹

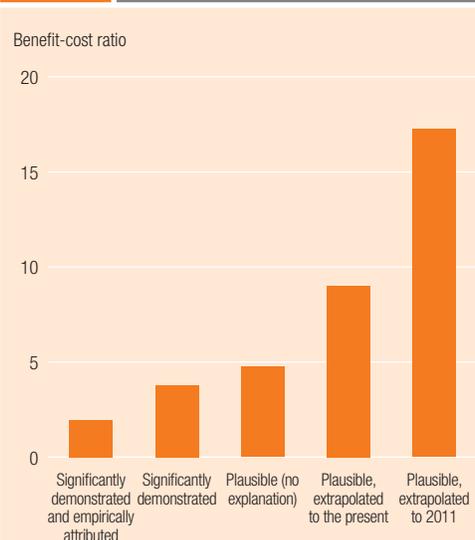
Estimated systemwide benefits ranged from nearly \$14 billion to more than \$120 billion. The benefit-cost ratios suggest that investments in the CGIAR have paid for

themselves by a wide margin: even by the most conservative criteria, overall benefits from CGIAR research were roughly double the costs of that research (figure A2.1).

Of note is the fact that the meta-analysis included only existing impact assessments. The small number of impact assessments of natural resource management and policy-oriented research means that the benefits of CGIAR research were understated, insofar as later evidence suggests that this research also had a positive impact. Coupled with the fact that all systemwide expenditures were considered, the reported benefit-cost ratios were similarly understated.

Interesting is the high proportion of benefits associated with just a few of the CGIAR's many programs. Roughly half (47 percent) of total benefits were attributed to rice breeding,

Figure A2.1 Aggregate benefit-cost ratios of CGIAR research under different scenarios of study selection



Source: Raitzer (2003).

and an additional 31 percent to breeding of spring bread wheat. Biocontrol research resulting in reduced crop damage from the cassava mealybug accounted for most of the remaining benefits (15 percent).

Two recent regional studies on Sub-Saharan Africa and South Asia reveal very different levels of impact of CGIAR research. No such study has been made for Latin America, though many specific studies show substantial impact, for instance, in the uptake of rice² and maize³ varieties.

Sub-Saharan Africa

Since its founding in 1971, the CGIAR has invested approximately \$4.3 billion in Sub-Saharan Africa.⁴ This represents 41 percent of total CGIAR expenditures, the largest share allocated to any geographical region. With the continent's relative lack of success in achieving agricultural development and poverty alleviation goals, the scale of resources devoted to Sub-Saharan Africa has inevitably raised questions about the returns on those investments. For this reason, in 2005, the SPIA commissioned a regional study to assess whether documented benefits

from these investments have exceeded their costs.

Following similar methods to those described for the systemwide evaluation, Maredia and Raitzer (2006) undertook a meta-analysis of 22 impact assessment studies conducted in Sub-Saharan Africa. The final set of studies considered was culled from a much larger group of 367 studies that were initially reviewed. Primary criteria for inclusion of a study in the meta-analysis included a sufficiently large geographic scale of adoption (eliminating many small-scale adoption studies), quantification of research benefits, and having undergone a peer review. Nearly every study that emerged from this screening process evaluated crop genetic improvement or biological control technologies. Roughly two-thirds of these were conducted since 2001 (the earliest since 1994). Estimates of benefits were calculated based on varying levels of conservatism and whether ex ante projections were considered.

Figure A2.2 presents the key findings.⁵ Benefits exceeded costs for all scenarios that included ex ante projections beyond the study period, with benefit-cost ratios ranging from 1.12 to 1.64. When only ex post benefits were

Figure A2.2 Comparison of calculated costs and estimated benefits of joint CGIAR-national agricultural research systems investments in Sub-Saharan Africa



Source: Maredia and Raitzer (2006).

considered, benefits and costs were more balanced; for the most conservative scenario, costs slightly outweighed benefits. The authors point out that many studies considered only one year of research benefits, even though such benefits would almost certainly extend for a number of years. Yet, even if benefit-cost ratios rose to the level of the least conservative scenarios, they would still be well below those found in the systemwide meta-analysis. Thus, while benefits from CGIAR investments in Sub-Saharan Africa have certainly exceeded their costs, the returns to research investment have been considerably lower in Sub-Saharan Africa than in other parts of the world.

The geographic scale of measured impacts is also relatively small. At the end of the 20th century, only about 11 million hectares (of about 100 million) were planted with CGIAR-derived improved germplasm in Sub-Saharan Africa.⁶ In addition, adoption of specific CGIAR technology products has been fairly small scale (in the tens of thousands of hectares).

But the distribution of benefits from CGIAR research is noteworthy. Biological control activities—particularly for the cassava mealybug—account for approximately 80 percent of documented benefits, with crop genetic improvement accounting for nearly all of the remainder. This is roughly the opposite of what has been found systemwide, a finding that is squarely in line with conventional wisdom that crop genetic improvement has been less successful in Africa than elsewhere.

South Asia

Hazell recently undertook a critical review of agricultural investments by the CGIAR and its partners in South Asia in the post-Green Revolution period (since the early 1980s).⁷ The study takes a markedly less structured approach to impact assessment than the two meta-analyses just described, reviewing existing peer-reviewed studies of productivity, social, environmental, and policy impacts.

Evidence indicates that agricultural research in South Asia has been instrumental

in maintaining impressive rates of agricultural productivity growth in the region since the green revolution. These productivity improvements have also yielded substantial indirect impacts on food security and poverty alleviation through price effects. Hazell finds that economic returns to these research investments have been consistently higher than national discount rates and that there is little evidence that these rates of return have declined over time. CGIAR Centers have made particularly impressive contributions to overall well-being through crop genetic improvement. Based on existing impact assessments, Hazell finds average annual benefits of more than \$1 billion from crop genetic improvement work, far in excess of the estimated \$65 million of annual expenditures of the CGIAR in South Asia. A survey of specific commodity and country studies further supports substantial rates of return to CGIAR crop improvement research. Many such studies tend to be rather dated, however.

Alternative approaches to agricultural development, such as organic farming and low external input technologies, though found to be unviable in the more favored agroecological areas, are more promising in less favored areas where natural resource and crop management regimes are central to the success of agricultural development strategies vis-à-vis seed varietal adoption. In addition, Hazell does find evidence of significant net benefits arising from work on efficient water and fertilizer use, on integrated pest management, and on zero tillage.

Hazell finds that there is a dearth of impact studies linking agricultural research investments to environmental or poverty outcomes. While assertions that agricultural intensification strategies have had undesirable environmental impacts are commonplace, there are few empirical studies to quantify these impacts. Likewise, there is little in the way of impact studies that include environmental costs and benefits or poverty reduction in measures of rates of return to research investments.

Crop genetic improvement research

Crop genetic improvement (CGI) has historically been the bread and butter of the CGIAR System. Improved germplasm for use by national programs, for direct release or as parent materials, is a classic international public good that demonstrated high spillovers across regions and countries for wheat and rice in the early years of the CGIAR. Nonetheless, over time CGI has received a sharply declining share of CGIAR resources, estimated at only 16 percent by 2005.⁸

Since the 1980s impacts of CGI have been fairly consistently tracked at the global level by IRRI for rice and by CIMMYT for wheat. A number of studies have analyzed use of CGIAR germplasm in released varieties, yield impacts, and global economic benefits. They consistently find high rates of return to the CGIAR investment in these crops—echoing the findings of the meta-analysis of total (systemwide) benefits and costs noted above.⁹ This is not surprising, given the broad geographic scale of the diffusion of improved varieties. That the benefits have been so well chronicled reflects the relatively straightforward nature of quantifying benefits associated with productivity increases and attributing those benefits to specific CGIAR research investments. In addition, methods for evaluation of impacts of CGI are well established in the literature, notwithstanding some questions of partitioning benefits between the CGIAR and national systems.¹⁰

The first comprehensive global evaluation of the impacts of the CGIAR in CGI was undertaken by SPIA around 2000. This study covered research carried out on 10 crops during 1965–98 at 8 Centers (Africa Rice Centre, CIAT, CIMMYT, CIP, ICARDA, ICRISAT, IITA, and IRRI).¹¹

The impact of CGI generally, and the central role of the CGIAR specifically, is clear for almost all crops. As expected, impacts have been greatest in rice, wheat, and maize in both area influenced and adoption. For these three crops, CGI has had the largest impacts

on yield growth, contributing from 0.7–1.0 percent annually. But impacts for “orphan” crops—crops other than rice, wheat, and maize—accelerated toward the end of the period. The use of CGIAR germplasm products has been even higher in released varieties of those crops (although areas under cultivation remain comparatively lower globally). Potatoes are the only crop where CGIAR germplasm plays a minor role.

Overall, 65 percent of the area’s 10 important food crops (wheat, rice, maize, sorghum, millet, barley, lentils, beans, cassava, and potatoes) are improved varieties. Sixty percent of the area is sown to varieties with CGIAR ancestry, and half of these are derived from crosses made at a CGIAR Center (direct releases by national systems).

Among regions, impacts have been highest in Asia (both in relative and absolute terms) and lowest in Africa. This partly reflects the distribution of crops between the regions— orphan crops are more important in Africa. But even for the same crop, impacts have generally been lower in Africa. This reflects the late start to breeding work in that region. For example, CIMMYT established its first serious maize breeding program for Africa (in Harare) in the late 1980s.

The benefits of CGIAR’s contribution to CGI are extraordinarily large—in the billions of dollars. Most of these benefits are produced by the three main cereals. Raitzer summarizes average annual benefits for CGIAR research: \$2.5 billion for spring bread wheat, \$10.8 billion for rice (Asia only), and \$0.6–0.8 billion for maize (CIMMYT only).¹² Evenson and Gollin estimate rates of return to the CGIAR’s investment in CGI research ranging from 39 percent in Latin America to more than 100 percent in Asia and Middle East and North Africa.¹³

Using a global model of food supply and demand, Evenson and Rosegrant also estimated the counterfactual of what would have happened to world food production without CGIAR contributions to CGI:¹⁴

- World food production would have been 4–5 percent less, and developing

countries would have produced 7–8 percent less.

- World grain prices would have been 18–21 percent more—adversely affecting poor consumers.
- Area planted with crops would have been significantly higher for all food crops, as cultivated area in developing countries would have expanded by 11–13 million hectares (and 5–6 million in industrialized countries), at the expense of primary forests and fragile lands with high biodiversity.
- In developing countries, per capita food consumption would have been 5 percent less on average, and up to 7 percent less in the poorest regions
- Some 13–15 million more children would have been malnourished, predominantly in South Asia, where incidence of hunger is highest.

An important question for this review is whether there is evidence that historical benefits from CGI have been maintained in the 20th century. The answer is constrained by the paucity of global evidence since the Evenson and Gollin study was completed.¹⁵ At a global and regional level, CIMMYT continued conducting impact studies until 2005 for wheat (with data ending in 2002). These studies indicated similar if not higher benefits.

Other studies at the local level point to progress in other crops and environments. ICRISAT has achieved successes with chickpeas in India, including in poor and marginal environments.¹⁶ The net present value of the investment in the genetically improved dual-purpose cowpea research and extension in West Africa over 20 years was estimated in the range of \$299–\$1,085 million.¹⁷ Depending on different assumptions, internal rates of return of 50–103 percent and a benefit-cost ratio of 32–127 were estimated. Deb et al. chronicle substantial geographic spillovers throughout Africa of ICRISAT sorghum varieties developed with Indian national agricultural research systems (NARS).¹⁸ And a series of recent adoption studies estimates that

new varieties of the common bean (*phaseolus vulgaris*) developed by the CIAT have been adopted in about half of the total bean area in East, Central, and Southern Africa, encompassing some 5 million households and reaching 35 million people over 17 years.

In marginal regions with low and uncertain rainfall, participatory approaches that directly involve farmers in varietal breeding and selection are also yielding positive impacts. Between 1997 and 2004, ICARDA's Barley Research Program in Syria transformed its operation from 8,000 plots planted and evaluated on the research station to 8,000 plots planted in farmers' fields and evaluated by farmers.¹⁹ Participatory plant breeding and varietal selection speeds varietal development and dissemination up 5–7 years, half the years in a conventional plant-breeding program. But impacts on farmer adoption have been modest to date.

Participatory variety selection has been used for more than 10 years for selection of so-called New Rice for Africa (NERICA) upland rice varieties in Africa, especially with participation of female farmers. NERICA rice combines the high productivity of Asian rice and the stress tolerance of African rice varieties. NERICA lines have been tested in 31 countries, with 16 lines released in 15 countries, and adoption on about 200,000 hectares.²⁰

Ex ante impact studies have favorably evaluated NERICA. But except in Guinea, adoption of NERICA has been slow. Participatory variety selection has been important in exposing farmers to the new varieties; of the farmers exposed to the new varieties, 38 percent have adopted NERICA rice. Initial assessments suggested high yield gains from NERICA would facilitate farmer-to-farmer transfers of seed and knowledge—as has been demonstrated in many areas, including many marginal areas of Asia. But more recent assessments have found much more modest yield gains, suggesting that an intensive and possibly costly program of participatory variety selection would be needed over many years to scale up adoption of NERICA rice.

Yield stability

Yield stability is important for all farmers, but especially for poor farmers whose food security and livelihood are vulnerable to pest and disease outbreaks, droughts, and other stresses. While early studies suggested that yields of improved varieties might be more variable than those they replaced,²¹ recent evidence suggests that later generations of improved varieties have stabilized yields.²² For example, Gollin concluded that the variability of maize and wheat yields measured by the coefficient of variation around trends over the past 40 years has fallen in developing countries.²³ This decline is statistically associated with the spread of improved varieties, even after controlling for more irrigation and other inputs. The annual value of benefits from improved yield stability in maize and wheat alone is estimated at \$149 million and \$143 million, respectively—more than the total annual spending on maize- and wheat-breeding research in developing countries.

Yield stability of improved varieties largely reflects long-standing efforts in breeding for disease and pest resistance. A third to a half of current research and development investments in crop breeding in the CGIAR may be for varietal maintenance. The only study to have attempted to capture this “hidden impact” of CGI, Marassas estimates that CIMMYT’s work on maintaining leaf rust resistance alone has generated \$5.4 billion in net present value from 1973–2007.²⁴

Since large areas are now being used each year for major food crops in relatively few improved varieties, genetic uniformity can make crops vulnerable to major yield losses. Some evidence suggests that genetic uniformity increases yield risk, even though it can also produce higher yields.²⁵ In recent decades, the world has largely avoided major disasters from genetic uniformity, partly because more frequent turnover of varieties has brought new sources of resistance.

But a new race of stem rust in wheat after more than 50 years has left CIMMYT, ICARDA, and their partners scrambling to find and release a new generation of resistant

varieties.²⁶ Likewise, IITA has successfully tackled a severe outbreak of cassava mosaic disease in western Kenya through rapid identification and release of resistant varieties.²⁷

Research in developing varieties that perform well under drought, heat, flood, and salinity is particularly relevant to threats posed by climate change. Progress has been slower than for disease and pest resistance. After more than 30 years of research to produce drought-tolerant maize varieties and hybrids, CIMMYT is now seeing results in East and Southern Africa. Compared with existing hybrids, new hybrids yield 20 percent more on average under drought conditions.²⁸ In addition, recent evidence points to significant yield gains in breeding wheat in drought and heat-stressed environments.²⁹ New varieties of rice that survive flooding have also been identified.³⁰

Genetic improvement of fish

WorldFish has developed genetically improved strains of Nile tilapia for on-farm production and extended these to farmers in six Asian countries, including Bangladesh. An assessment of on-farm trials by Deb and Dey shows yield gains of 78 percent in Bangladesh achieved without any increase in production costs.³¹ Using economic surplus methods, Deb and Dey quantified the benefits from and costs of research and dissemination by WorldFish and its partners in all six countries and obtained an internal return rate of 70 percent.³²

Biofortification

Although not strictly impact assessment, recent evaluation of biofortified crops is interesting because it is one of the first examples within the CGIAR of using experimental approaches to evaluate interventions—specifically, comparing a biofortified treatment with a conventional variety in randomly selected households.

Quality protein maize, now grown on about 600,000 hectares, has been subject to such evaluations—though all with methodological problems. In a meta-analysis of eight

such studies, Gunaratna finds a 7 percent average effect of quality protein maize on children's rate of height gain and 9 percent on weight.³³ A recent study at two sites in Ethiopia finds mixed results. Significant height and weight gains (21 percent and 26 percent, respectively) were found at one site; but at another site no significant anthropometric effects were found.³⁴ In Mozambique, 850 households participated in an experiment with orange-fleshed sweet potatoes from CIP. A significant increase of vitamin A intake was measured among young children living in households receiving the orange-fleshed treatment combined with extension advice on nutrition.³⁵

These studies are not strictly impact studies, since they do not consider aggregate adoption and long-run use. Still, this type of work is likely to accelerate with the scaling up of biofortification research under the HarvestPlus program. Ex ante impact work is also under way—for example, the evaluation of the potential impacts on disability adjusted life years of Vitamin A rice in India.³⁶

CGI has long been the staple activity of the CGIAR, one whose net benefits have been large and well chronicled. Overall, the available evidence does not indicate a slowdown in the benefits of CGIAR efforts in CGI in recent years, even with ever-tighter funding. Recent research in a range of crops, both cereals and noncereals, and traits (such as drought resistance and nutritional content) are generating very promising outputs and outcomes for future impact. But the long delays between initial funding and the development of such CGI products makes continued funding for CGI research difficult. Between the 1990s and the present, research to increase productivity has declined in real terms and as a percentage of CGIAR research expenditure (see chapter 5).

Another concern is the paucity of evaluative evidence on the adoption and impacts of some promising CGI outputs for which diffusion appears poised to take off (for example, NERICAs, biofortified products like quality protein maize); while other successes, such as

improved chickpeas and cowpeas have, been found to produce impressive gains in local and regional analyses, they have not yet been evaluated in the quantitatively rigorous way that other crops were in the landmark Evenson-Gollin volume. Thus, there is a continuing need for the CGIAR Centers and SPIA to regularly update global assessments of the impacts for all crops (once every five years).

Natural resource management research

Natural resource management (NRM) research within the CGIAR has evolved over time. In the 1960s and 1970s, NRM research focused mainly on agronomic issues, such as efficient use of nutrients and fertilizers, pesticide use, and water distribution and management. In the late 1970s and 1980s, the NRM research agenda took on more of a farming systems perspective and emphasized farmer participatory methods. Productivity-related work broadened to include whole farm systems (as opposed to crop-specific impacts), and the focus of much water management research shifted from the farm-level to the watershed- or district-level.³⁷

The decision in 1990 to expand the CGIAR to include four new Centers—with mandates in forestry (CIFOR), agroforestry (World Agroforestry Centre), water management (IIMI), and fisheries (ICLARM)—marked a turning point in the position of NRM research within the System. Investments in those four Centers grew steadily throughout the 1990s and into the 21st century—largely at the expense of commodity and ecoregional Centers with a stronger productivity-enhancement orientation.³⁸ This was also the case for allocating resources to NRM research programs through other programs in the other Centers.

CGIAR research on pest management has been a particular aspect of its NRM research involving conservation and use of natural enemies of crop pests and diseases. It complements CGI research on breeding resistance to pests and diseases and has played an

important role in yield stability in a range of crops. Pest management research at Centers has focused on biological control, integrated pest management, and resistant varieties.

Biological control of alien pests and weeds has been a particular success story for the CGIAR, particularly in Africa. The capacity of CGIAR Centers to work effectively at an intercontinental level, to identify biological control agents, and at a regional level with national programs, to distribute agents effectively, has contributed to this success. One of the best known cases is the control of the cassava mealybug in 20 countries in Sub-Saharan Africa.³⁹ The biological control provided by an introduced wasp was so effective that the cassava mealybug is now largely controlled. Even when using the most conservative assumptions, the return on this research investment has been extremely high (net present value estimated at \$9 billion).

CGIAR Centers and partners have since extended biological control in West Africa to cassava green mite, mango mealybug, and water hyacinth. Evaluations consistently show very high returns to the investments in these programs. Indeed, biological control makes up a large share of the demonstrated benefits of the CGIAR's research portfolio in Sub-Saharan Africa.⁴⁰ Coulibaly estimates investments in biological control of cassava green mite to have generated net present values of \$1.7 billion for Nigeria, \$383 million for Ghana, and \$74 million for Benin.⁴¹ And even these impressive benefits are likely understated because the analyses did not account for ecological benefits.

Integrated pest management research arose from a need to find alternatives to reliance on chemical pesticides to protect yield improvements in rice. Since this work in the 1980s many Centers have contributed to a global effort by the Food and Agriculture Organization, national agricultural research systems, and nongovernmental organizations to develop integrated pest management approaches, including development of biological pesticides and farmer field schools to train farmers in integrated pest management.

Farmer field schools have brought significant benefits to farmers.⁴² A study that assessed CIP's pilot field school program in Peru found a 14 percentage point increase in knowledge score for participants and an estimated 32 percent gain in productivity.⁴³ And a project in Vietnam, Three Reductions—Three Gains, begun by IRRI in 2003 shows promise in using mass media to disseminate information on the benefits of reducing pesticide use (as well as lowering seeding rates and fertilizer use). This project uses radio and television dramas, in addition to more traditional extension channels, and has enjoyed some early successes, though these have yet to be rigorously evaluated.

Longer-term and larger-scale impact of integrated pest management training may be less certain,⁴⁴ in part because, unlike improved crop varieties, the spread of knowledge intensive integrated pest management methods requires considerable and maintained investment in training.⁴⁵

Policy-oriented research by Templeton and Jamora provides evidence of large impacts of IRRI research on reducing the health costs of pesticide use.⁴⁶ The value of private health savings from that research—attributable to regulation of highly toxic insecticides in rice production, labeling requirements, and training of rural health officers—has been estimated to have a net present value of \$117 million.

Growing evidence suggests positive returns on investments in a variety of NRM research activities in the System. As methods for measuring impacts of NRM research become better developed—due in large part to SPIA's efforts to promote that line of impact assessment—documentation of net benefits to NRM research should accelerate.

But much NRM research occurs at a relatively limited geographic scale through other types of CGIAR research—often because local collective action and delineation of property rights are central to adopting NRM technologies (CIMMYT's zero-tillage work in South Asia is a notable exception). This likely limits the potential for spatial spillovers of

management methods and biophysical packages, particularly in comparison with spills associated with seed varieties.

In addition, NRM research impact assessments to date have focused largely on productivity benefits. Environmental benefits are largely ignored—presumably because of the methodological difficulties in quantifying them. Such quantification would require non-market valuation techniques, which are still rare in developing countries. An unfortunate consequence of this is that there is little evidence on CGIAR's success in meeting its goal of promoting environmental sustainability.

Policy-oriented research

Policy analysis is the basic mandate of four Centers (Bioversity, CIFOR, IFPRI, and IWMI) and is a major focus of the others. CGIAR expenditures on policy-oriented research have grown substantially, in absolute terms and as a proportion of the systemwide research portfolio.⁴⁷ Conservative estimates place the total value of such investments at \$800 million (in real 2004 terms), and more than triple that number using a broader definition of policy research.⁴⁸

As with NRM research, the World Bank's meta-evaluation of the CGIAR⁴⁹ found a striking lack of credible studies analyzing impacts of the large historical investments in policy-oriented research. In response, SPIA conducted a scoping study in 2006 that identified and reviewed 24 *ex post* assessments from CGIAR policy-oriented research projects.⁵⁰ Only three studies yielded empirical estimates of economic impacts. About half of the others (10 of 21) documented "influences" (or outcomes, in the nomenclature adopted in this Review), generally relying on interviews of relevant stakeholders as "data." The remaining 11 assessment studies went only so far as to document outputs, primarily through bibliometric and webmetric citations analysis. The 21 more qualitative studies spanned a range of policy domains: property rights, plant genetic resources, and gender, in addition to the NRM policy studies in chapter 3.

These provide substantial qualitative evidence on how and why policy-oriented research and the research recommendations it generates find their way into the real-world policy formulation and implementation. But the studies stop short of quantifying impacts on core CGIAR missions of food security, poverty alleviation, and environmental sustainability, though they do represent an essential complement to quantitative research.

The dearth of empirical impact assessments is attributable to the difficult challenges facing analysts of policy-oriented research in the quantification of ideas and knowledge—the fundamental product of policy-oriented research—and their attribution to specific producers of that knowledge. Even so, the authors of the scoping study conclude that the "the level of measured and documented impact and influence attributed to CGIAR policy-oriented research by rigorous analysis is probably insufficient at present to justify the associated total investment made to date."⁵¹

As a follow-up to the scoping study, seven impact assessments of policy-oriented research were commissioned in 2007 through a competitive selection process among the Centers. The project was overseen by the late Bruce Gardner until his death in early 2008, by which time the case studies had been presented at a final workshop. The seven studies are currently in preparation for publication in an edited volume.

All of these studies found substantial returns to policy-oriented research investments in the form of high internal rates of return and large benefit-cost ratios.⁵² In addition, the overall measured benefits of the projects were large—in the tens or hundreds of millions of dollars in net present value terms. However, a few qualifications to these positive results are in order:

- The studies employed different means of attributing behavioral changes to policy changes and what was the contribution of the relevant CGIAR Center to the policy change. All studies indicated that "conservative" assumptions were made in this regard,

although defining what constitutes conservatism in this context is inevitably random. But taking as given that the studies' authors have erred on the side of caution, then the true net benefits of policy-oriented research are larger—perhaps substantially so—than what is reported.

- Identifying the appropriate counterfactual—what would have occurred in the absence of the research that was conducted—is a challenge for assessing policy-oriented research impacts. In most cases, the counterfactual related to earlier implementation of a policy or set of activities than would have occurred without the Center's involvement. Again, the impact assessment literature provides little guidance to assist in making these choices. As with attribution issues, the analysts tended to simply adopt “conservative” assumptions, in the hope that any bias in the benefits estimation would be downward. This does not intend to call into question the accuracy of the studies' findings but rather to point out the inevitable lack of precision in the point estimates of impact (internal rates of return, benefit-cost ratios).

All five impact assessments were country studies conducted in a particular policy environment, but all produced knowledge relevant to policy domains in other countries. Such spillovers, if and when they occur, represent potent international public goods. Only the PROGRESA study quantified these spillovers, finding that they were in fact nearly five times greater than the entire cost of IFPRI's contribution to the research activity. Ryan's earlier analysis of IFPRI's contribution to policy change in Vietnam's rice sector also finds that the benefits from spillovers greatly outweigh the project's costs.⁵³

Other recent policy-oriented research assessments

Two other recent qualitative impact assessments conducted under the auspices of IFPRI

provide interesting insights into the effectiveness with which policy-oriented research translates into actual policy influence. A review of the Ethiopian Strategy Support Program's activities and impacts over 2004–07 indicates substantial success in the generation of research-based policy recommendations, development of policy-analysis tools (outputs), and capacity-building within the nexus of Ethiopia's government and research sectors.⁵⁴ Central to the program's successes was IFPRI's strong on-the-ground presence (spearheaded by the program director, an Ethiopian national). In contrast, a review of IFPRI's Global Research Project on the Sustainable Development of Less-Favored Lands over 1998–2004 found significantly less success in translating a large body of outstanding policy-oriented research generated by the project investigators into sustained policy influence in the countries of emphasis—Ethiopia, Honduras, and Uganda.⁵⁵ This lack was attributed to limited on-site representation, which interrupted the process whereby research findings can be transformed into policy.

CGIAR's impact on poverty

Poverty alleviation is a core mission of the CGIAR, and throughout its 37-year history much research has been oriented toward enhancing the welfare of the poor. The literature on economics provides substantial evidence of pro-poor impacts of international agricultural research and development. Thirtle, Lin, and Piesse conclude, for example, that “public sector national agricultural research systems, with the assistance of the CGIAR, can justly claim to have reduced poverty, probably more than any other single policy initiative.”⁵⁶ In a recent work, however, Alston, Dehmer, and Pardey contend that the broadening of CGIAR objectives over time—termed *mission creep*—has actually eroded the System's effectiveness in fulfilling its various missions (including poverty alleviation).⁵⁷

Between 1998 and 2006, systematic assessment of the extent to which CGIAR

research has led to poverty reduction was implemented under IFPRI leadership. This effort culminated in seven poverty impact studies.⁵⁸ Table A2.1 provides a summary of five of these studies.⁵⁹ Two studies assessing the poverty impacts of modern variety rice adoption in Bangladesh, China, and India were national in their coverage, while the studies of fishpond and vegetable technologies in Bangladesh, soil fertility replacement due to agroforestry in Kenya, and creolized and recycled maize varieties in Mexico had a more limited geographic focus.

In general, the studies described in table A2.1 were unable to establish firm empirical links between the technology products and packages and poverty reduction. The Bangladesh modern variety rice study found that the statistical significance of the positive

relationship between area under modern varieties and incomes of the poor disappeared between 1987 and 2002. ICRAF's analysis of agroforestry-related soil fertility replenishment technologies in Kenya appears to suggest that poorer households with smaller landholdings were less able to benefit from those technologies. Similarly, the analysis of fishpond and vegetable technologies in Bangladesh indicated that landholdings were a limiting factor in adoption of fishponds for the poorest households and that fishponds also may have raised the vulnerability of the poor to income shocks. The study of creolized and recycled maize in Mexico raised interesting issues about informal breeding by poor farmers and the links to CIMMYT germplasm but fell short of quantifying its impact on the poverty status.

Table A2.1 Summary of poverty impact studies

Institution (timing)	Location (scale) ^a	Program assessed	Impacts on poverty status
IRRI (1988, 2001)	Bangladesh (National sample: 1,888 hectares, 64 villages)	IRRI rice improvement research	<ul style="list-style-type: none"> • Lower consumer prices. • Modern variety rice adoption freed up labor resources for participation in nonagricultural labor markets. • Positive, significant direct impact from area with modern variety on income of the poor in 1987 but not in 2002.
IFPRI (1996, 2001)	Bangladesh (Three districts: 321 hectares, 27 villages)	Polyculture fishponds and improved vegetables ^b	<ul style="list-style-type: none"> • Social empowerment (particularly women). • Positive impact on vulnerability clearer for vegetables, ambiguous for polyculture. • Some coercive transfer of gains.
ICRAF (1999–2002)	Kenya (Two districts: 120 hectares, 17 villages)	Soil fertility replenishment	<ul style="list-style-type: none"> • Social networks crucial to the poor attaining benefits of soil fertility replenishment. • Households with little land, labor less likely to benefit. • Positive impact on asset accumulation, but not on expenditure or nutrition.
CIMMYT	Mexico (Two states: 325 hectares, 12 communities)	Creolized varieties and recycled hybrids	<ul style="list-style-type: none"> • Popularity with poor farmers because of the cost savings from improved varieties and the superior production traits from landraces.
IFPRI (1981–1999)	China, India (National: district-level data)	IRRI rice improvement research	<ul style="list-style-type: none"> • China: 6.77 million people moved out of poverty due to IRRI research (but steady decline from 1 million in 1981 to 30,000 in 1999) • India: 14 million people moved out of poverty due to IRRI research during 1990s (but declining in latter half of decade) • Decline over time in individuals who moved out of poverty per \$1,000 of IRRI spending

a. Excludes nonadopting control villages or households used for purposes of comparison.

b. Technologies developed by ICLARM and Asian Vegetable Research and Development Center, respectively.

Source: Hossain et al. for IRRI; Hallman, Lewis, and Begum for IFPRI 1996 and 2001; Place et al. for ICRAF; Bellon et al. for CIMMYT; and Fan et al. for IFPRI 1981–99.

In contrast, the studies of modern variety rice in China and India provide stark empirical evidence of impact. They find that between 1981 and 1999 more than 6.75 million Chinese moved out of poverty due to IRRI's research. In India the numbers are even more impressive: 14 million people moving out of poverty between 1991 and 1999. According to these studies, lower food prices from increased aggregate production were the main pathway by which modern variety rice reduced poverty in China and India.⁶⁰ But even here, there is one sour element to the story. The bulk of these impressive poverty reduction accomplishments occurred in the early part of the time period analyzed, with the marginal contribution to poverty reduction declining rather precipitously over time. The study's authors attribute this to the diminished marginal yield improvements from investment in rice research over time and budgetary limits for IRRI research, along with the inevitable decrease in the marginal contribution of rice research to poverty reduction in the face of rapidly falling poverty levels.⁶¹

Capacity building with partners

Capacity building is not, strictly speaking, CGIAR research that generates specific outputs. But it is an essential element of the CGIAR's capacity to support the delivery of impact, through empowering national agricultural research system partners and others involved in the impact pathway. The CGIAR invests about 20 percent of its resources in capacity building to strengthen national agricultural research systems, a share that has remained relatively steady over time.⁶² Capacity building covers a range of activities classified into formal short-term and graduate training, networking activities, support to specific countries that integrates training, and technical assistance and institutional and infrastructural development. In addition, capacity building involves various informal activities, such as mentoring of scientists.

Despite the substantial resources devoted to this activity, there are few studies on

impact; and those few have had to confront a number of methodological challenges in terms of attribution of benefits to CGIAR Centers, establishment of meaningful counterfactuals, and assessment of spillovers.⁶³ A few of these studies have already been mentioned in the context of policy-oriented research. Institutional capacity building lies at the heart of CIFOR's establishment of criteria and indicators of sustainable forest management in forest policymaking.⁶⁴ Likewise, IFPRI's Ethiopian Strategy Support Program has generated significant qualitative evidence of impact on capacity building within Ethiopia's government and research sectors.⁶⁵ In addition, many of the activities surrounding the Alternatives to Slash and Burn SWEP revolved around institutional capacity building in countries with large tracts of tropical forest land.⁶⁶

Another study conducted under the auspices of SPIA's initiative on policy-oriented research deserves mention here. Gotor, Caracciolo, and Watts document Bioversity's pivotal role in the establishment of in-trust agreements governing CGIAR germplasm.⁶⁷ These agreements formally maintained the international legal status of germplasm that the CGIAR held in ex situ genebanks. This was truly a landmark achievement: Without these agreements, multilateral exchange of genetic resources would have been subject to significant disruption, as states would have had the authority to restrict access to CGIAR's very sizeable germplasm holdings.

Training is one of the major capacity-building activities of nearly all CGIAR Centers. A systemwide evaluation of training commissioned by the Science Council found that Center training is broadly relevant to national agricultural research systems' capacity needs, training quality is generally of high quality, and trainees' perceptions confirm that significant synergies exist between training and positive research outcomes.⁶⁸ That review also found substantial regional differences in the effectiveness of training within the CGIAR, with particular deficits associated with poorer countries.

Graduate training has been favorably assessed by ILRI in contribution to skills and by inference to institutional development.⁶⁹ CIMMYT has conducted four evaluations of its in-service short courses since 1971. Most recently, Cooksy and Arellano favorably evaluated these short courses for instigating new knowledge and skills, accessing new research methods, changing research priorities, and building social capital among wheat and maize scientists from around the world.⁷⁰ Neither studies provide rigorous quantitative measures of impact, however. Alternatively, Jackson finds that impacts on training and capacity building of IFPRI's research on gender and intrahousehold allocation were "rather lower than hoped," due to lack of demand on the part of policymakers.⁷¹

Networking is also a major capacity-building activity of all Centers. These networks involve various forms of exchange of knowledge and materials and research collaboration, and many also provide equipment and training. However, the role of the CGIAR Centers and the organization of networks vary widely.⁷²

There are very few recent evaluations of impacts of these networks. One is a recent evaluation by Pray of the Asian Maize Biotechnology Network organized by CIMMYT in six Asian countries.⁷³ This network was successful in developing new skills in molecular-assisted selection focused on specific disease problems. The study also measured increased expenditure on maize research, more exchanges within the region, and a sharply increased rate of journal publication, especially in international journals (from 4 international articles before the network was established to 24 after). This study goes beyond direct effects on network participants to look at spillover effects and potential economic impacts from faster progress in achieving disease resistance (even though products of the network have yet to reach farmers' fields). A similar study by Longmore et al. reviewed a capacity-building effort in biotechnology for insect resistant Bt sorghum in India.⁷⁴ They also estimated a benefit-cost ratio of at least 24, again based on assumptions about future

adoption of expected and yet-to-be-realized outputs.

Finally, several Centers have undertaken long-term support to build country-specific research capacity, especially for weak national agricultural research systems or countries emerging from civil conflict. IRRI has evaluated the impacts of these programs in Cambodia, Laos, and Myanmar for programs that ran over a decade.⁷⁵ While all three studies show rapid increases in rice production and incomes, they fail to show attribution or consider the counterfactual, although in all probability, IRRI's contribution was critical to the success.

Notes

1. The choice of 1960 was made to account for expenditures made by the founding Centers prior to formal inception of the system in 1971.
2. Sanint (2004).
3. Morris and Lopez Pereira (1999).
4. Maredia and Raitzer (2006).
5. Maredia and Raitzer (2006).
6. Maredia and Raitzer (2006), p. 18.
7. Hazell (forthcoming).
8. Pingali and Kelley (2007).
9. Raitzer (2003).
10. In addition, most studies tend not to explicitly address counterfactual scenarios of technology products that would have been produced (by alternative sources) in a world without the CGIAR—Evenson and Rosegrant (2003) being a notable exception.
11. Evenson (2003a, 2003b).
12. Raitzer (2003).
13. Evenson and Gollin (2003).
14. Evenson and Rosegrant (2003).
15. Evenson and Gollin (2003).
16. Joshi, Asokan, and Bantilan (2005); Shiyani et al. (2002), pp. 33–39.
17. Kristjanson et al. (2002).
18. Deb et al. (2004).
19. Walker (2007).
20. Somado, Guei, and Keya (2008).
21. Anderson and Hazell (1989).
22. Gollin (2006); Pandey and Pal (2000).
23. Gollin (2006).
24. Marasas, Smale, and Singh (2004).
25. Smale and Drucker (forthcoming).
26. Stokstad (2007), pp. 1786–1787.
27. Abele et al. (2005), pp. 233–237.

28. CIMMYT (2006).
29. Lantican, Dubin, and Morris (2005).
30. Xu et al. (2006).
31. Deb and Dey (2005).
32. Deb and Dey (2005).
33. Gunaratna (2007).
34. Ethiopian Health & Nutrition Research Institute, Sasakawa-Global (2000); International Maize and Wheat Improvement Center (2008).
35. Low et al. (2007).
36. Stein, Sachdev, and Qaim (2008).
37. Gregersen and Kelley (2007).
38. Kelley and Gregersen (2005).
39. Zeddies et al. (2000).
40. Maredia and Raitzer (2006).
41. Coulibaly et al. (2004).
42. van den Berg (2004).
43. Godtland et al. (2004).
44. Feder, Murgai, and Quizon (2004).
45. Tripp, Wijeratne, and Piyadasa (2005).
46. Templeton and Jamora (2007).
47. Using data from CGIAR annual reports, Havenner computes that overall funding for policy grew by roughly 85 percent between early 1992 and 2005—from 10 percent to 16.5 percent of the total systemwide budget. During the same period, production-related funding fell by 15 percent, from nearly half to just over a third of the systemwide budget (Art Havenner, personal communication).
48. SPIA (2006a).
49. World Bank (2003).
50. SPIA (2006a).
51. SPIA (2006a), p. 19.
52. Preliminary results from two of the other commissioned studies—analyses of ICARDA research on Syrian fertilizer supply policies and barley production (Shideed, Alary, et al. 2007) and ILRI research on dairy marketing policy in Kenya (Kaitibie et al. 2007)—also indicate benefits exceeding cost by a substantial margin .
53. Ryan (1999).
54. Colman, and Mellor (2007).
55. English and Renkow (2007).
56. Thirtle, Lin, and Piesse (2003), p. 1973.
57. Alston, Dehmer, and Pardey (2006).
58. Adato and Meinzen-Dick (2007).
59. Two other case studies—of hybrid maize in Zimbabwe and of agricultural research—urban poverty linkages in India and China—are omitted from consideration here because the poverty impacts they chronicle are not explicitly connected to specific CGIAR research or technology products.
60. In contrast, the other studies, which focused on direct productivity effects, did not find significant linkages between technology adoption and poverty reduction.
61. Fan et al. (2007).
62. Pingali and Kelley (2007).
63. SPIA is currently initiating an effort to develop methods for accommodating these challenges.
64. Spilsbury (2007).
65. Colman and Mellor (2007).
66. SPIA (2006b).
67. Gotor, Caracciolo, and Watts (2007).
68. CGIAR Science Council (2006).
69. Eley et al. (2003).
70. Cooksy and Arellano (2006).
71. Jackson (2005).
72. Plucknett, Ozgediz, and Smith (1990).
73. Pray (2006).
74. Longmore, Gordon, and Bantilan (2007).
75. Young et al. (2001); Shrestha and Bell (2002); Shrestha, Bopha, and Khamphoukeo (2006).

Terms of reference and Review Panel members

Terms of reference

In the last several years the CGIAR has witnessed considerable changes as part of its internal reforms, including establishing an Executive Council, creation of the Science Council, and the launching of the Challenge Programs. The 15 Centers have also created an alliance to more effectively facilitate and coordinate their collective activities. Even though all CGIAR Centers and programs undergo external reviews regularly, there has been no review at the system level to assess the impact and effectiveness of changes initiated during the reform program except for one of the components of the reform (the System Office).¹

The last CGIAR System review was conducted nine years ago, and it has been four years since the last independent meta-evaluation commissioned by the World Bank was released. Therefore, this external evaluation will take stock of the efficacy of the CGIAR partnership and address issues of governance, management, alignment, and other changes required at the System level.² The review will also assess the achievements and effectiveness of the CGIAR research through an analysis and synthesis (of existing reviews and impact assessments of the Center programs and Challenge Programs) and assess if the system is well positioned to address the emerging future food security and agriculture-related problems of developing countries.³

Introduction

The Consultative Group on International Agricultural Research (CGIAR), created in 1971, is an informal association of 64 independent public and private sector members, from South and North, with the World Bank,

FAO, IFAD, and UNDP as cosponsors. The CGIAR provides 15 international agricultural research centers with strategic guidance, financial assistance, and a forum for interaction with donors. A loosely connected network of several components forms the CGIAR System. The pillars of the CGIAR System are: the Consultative Group, its Executive Council (ExCo), and partners that provide funding and strategic guidance; the Science Council that helps to maintain a high quality of science in the CGIAR System; 15 legally independent international agricultural research Centers, and the Alliance they have formed for their collective action, which are the implementing agencies and research arm of the CGIAR system.

These are supported by the CGIAR System Office (SO),⁴ which has a pivotal facilitating role in the integration and administration of the System.

Each part of the System is expected to perform a distinct set of functions, based on its roles and responsibilities. These functions are meant to be mutually supportive and complementary; the components are interdependent, and the whole is far greater than the sum of the parts, thereby providing the CGIAR with its systemic character. The CGIAR System collaborates in research and research-related activities with many partners, to support, conduct, and disseminate international agricultural research of the highest quality, in order to ensure that agricultural science and technology contribute significantly to sustainable development and the attainment of the Millennium Development Goals.

The mission of the CGIAR is to achieve sustainable food security and reduce poverty in developing countries through scientific

research and research-related activities in the fields of agriculture, livestock, forestry, fisheries, policy, and natural resource management.

These terms of reference (TOR) describe the following: objectives of the external review, scope of the review, methodology, reports, budget, review panel, ExCo Ad Hoc Advisory Group, tentative timeline, and key next steps; an ExCo ad hoc advisory group has been established to guide finalization of the TOR for the external review and panel composition. The group is composed of one alliance representative, two CGIAR Members, and one Science Council (SC)/Standing Panel on Impact Assessment (SPIA) member.

Objectives of this Review. The Review will have the following objectives, with a special emphasis on (but not limited to) the impact of the recent reform program:

- To take stock and assess the efficacy of the CGIAR partnership.
- To assess the effectiveness of CGIAR research.
- To make recommendations for changes in the CGIAR System that will improve its efficacy and effectiveness in view of emerging challenges for food security, agriculture, and natural resource management of the poor.

Scope of the Review. The Review would have two concurrent, closely linked, and equally important parts. Part one: the review of the efficacy of the CGIAR System operating as an international partnership building on three pillars—the Consultative Group, the Science Council, and the 15 research centers and their Alliance. Part two: the review of the effectiveness of research supported by the CGIAR based on analysis and synthesis of the existing external evaluations such as center External Program and Management Reviews (EPMRs), the ongoing external reviews of Challenge Programs, reviews of the System-wide and Ecoregional Programs (SWEPs), impact assessment studies, the CGIAR

Member-commissioned reviews of centers/projects, and other external reviews of the CGIAR programs. Findings from both parts will be consolidated in a final report that will also highlight linkages between the two components of the review.

Part I. Efficacy of partnership: governance, management, and alignment in the System

The Consultative Group, its Executive Council, and partners

1. What are the strengths and weaknesses of the partnership as a whole? Is the governance structure effective and enhancing the system? What have been the key changes in the governance and management processes/procedures in recent years, and how did that impact the partnership? Are there key constraints/limitations to the partnership, and if so, what are they?
2. How effective is the partnership approach taken by the CGIAR in forming an informal international association? Are there any lessons for/from other global partnerships?
3. How effective is the CGIAR in serving as a platform and catalyst in supporting and delivering international agricultural research for development?
4. In terms of the governance of the System, what has been the performance of the Executive Council since its inception in 2001 as one of the important components of the reform program? Has the Executive Council made decisionmaking more effective and efficient within the CGIAR partnership? Are the role, size, and composition of ExCo appropriate for its mandate? How effective are the CGIAR Annual General Meetings, including the Stakeholder Meeting and Business Meeting?
5. Does the partnership operate in a transparent manner? How are the members of the partnership accountable to the partnership?
6. How effective is the CGIAR in establishing and facilitating partnerships among

- CGIAR Centers and between CGIAR Centers and external partners (both public and private sector)?
7. Is the current financing structure for the system appropriate? Is it efficient and suited to the development and dissemination of international public goods? Is the CGIAR constricting or creating synergies for aligning the funding? What is the role of unrestricted resources in supporting the system, including the reform program? How has the decline in unrestricted funding affected the system as a whole, particularly its governance and its ability to deliver research products that contribute to the fulfillment of the CGIAR mission? How effectively does the system deal with financial risks?
 8. What is the role of the World Bank, as the largest contributor of unrestricted resources, in facilitating the operation of the system? How is the World Bank contribution (which is not only monetary) assisting to leverage other CGIAR Members' funding into the CGIAR and impacting reform of the system, its governance, mode of operation, etc.? What is the role of the other cosponsors?
 9. How do CGIAR Members view their involvement and change of involvement over the past few years? And the role played by the cosponsors?
2. How has the process for setting system priorities, led by the SC, contributed to the CGIAR strategic alignment?
 3. Is the size, composition, and structure of the Science Council suitable for the key functions it performs within the CGIAR system?
 4. How is the SC perceived by CGIAR Members and Centers?

The Centers

1. How well does the Alliance of the CGIAR Centers perform collectively? Is the Alliance a cost-effective mechanism for collective action? How is it perceived by Centers, Members and other partners?
2. How does system governance (ExCo and the CGIAR) relate to Center governance? How does System governance relate to the governance of the Alliance of the CGIAR Centers?
3. How does the autonomy of the 15 research Centers and of the 64 Members balance with the need for accountability and collective action at the System level? What are the challenges of keeping the system aligned while also respecting this autonomy?
4. How effective is the oversight and governance of the individual Centers? How well equipped are the Center Boards in playing this oversight role at the center level?
5. How effective is the partnering of CGIAR Centers outside the system?

The Science Council

1. How does the SC fulfill its role within the system? How is their performance perceived by internal and external stakeholders? Has the SC effectively fulfilled the three main objectives for which it was set up:
 - Enhancing and promoting the quality, relevance, and impact of science in the CGIAR.
 - Advising the group on strategic scientific issues of importance to its goals.
 - Mobilizing and harnessing the best of international science for addressing the goals of the international agricultural research community?

The System Office

1. How effective is the System Office, as a virtual structure, in helping to increase coordination, capture synergies, and increase overall performance of central service units that support the Centers and the CGIAR System as a whole?
2. How well do three units of the System Office, namely the CGIAR Secretariat, Science Council Secretariat, and the Alliance Office, perform their functions? Are their structure, size, and composition

appropriate for the key functions they perform? Are accountability mechanisms and processes for increasing efficiency appropriate given their respective roles? Is there a potential conflict of interest in the CGIAR Secretariat's involvement in administration of the allocation of the funds from the World Bank and other donors?

3. What are CGIAR Members and Centers perceptions about the three units?

Relations and synergies across the three pillars of the CGIAR System

1. Are the levels of responsibility and accountability among the three pillars appropriate? Are the voices of the three pillars appropriately represented in System governance?
2. What are the costs, including transaction costs, and benefits of the governance structure? Is the distribution of these costs and benefits among the three pillars appropriate to enhance the implementation of the mission of the CGIAR?
3. What are CGIAR Members' perceptions about the issues of relative autonomy and accountability and about the current layers of governance in the System

Part II. Achievements and effectiveness of CGIAR research

To assess the achievements (outputs, outcomes, and impact) and the effectiveness of the CGIAR research, the evaluation will rely mainly on analysis and synthesis of the EPMRs, the Challenge Program External Reviews (CPEs), external reviews of system-wide programs, the CGIAR Member-commissioned reviews of centers, projects, and other external reviews of the CGIAR programs, Center- or SC-commissioned impact assessment studies, general Center reports as well as pertinent development literature. The evaluation should address the following issues:

1. Given the level of investment, how do CGIAR funds contribute to enhancing agricultural productivity, natural

resource management, and food security? What is the evidence of the relationship between achieving these and economic growth and poverty alleviation?

2. What evidence is there that CGIAR-generated technology and policy options are international public goods that are utilized by partners, with the former ultimately adopted by poor smallholders and the latter implemented by development agencies?
3. Does the CGIAR contribute to poverty reduction objectives of international development agencies (including the World Bank), and how are CGIAR outputs being utilized by them?
4. How effective are the Challenge Programs, both in terms of partnership models they use and also in terms of the productivity of the research?
5. What pressing issues should be considered for new and expanded CGIAR efforts? Are there areas where CGIAR research could be reduced?
6. How does investment in agricultural research and development relate to agricultural GDP (for example, Sub-Saharan Africa), and what is the share of the total CGIAR investment in total agricultural research and development (for the same region)? What is the trend and would an increase in international agricultural research investments (such as the CGIAR) affect agricultural GDP significantly? For example, given the small share of the total investment in agricultural research and development that is represented by the CGIAR investment, and given the returns on this investment so far, would an increased investment in CGIAR research bring about more than proportional returns in terms of impacts on the CGIAR mission?
7. Has the CGIAR system maintained its focus on international public goods? How well do the system priorities position the CGIAR with respect to its mission? What forces are affecting programs and decisionmaking in this regard? Is

- this the most effective focus to alleviate poverty?
8. How effective are current approaches to collaborative research with partners? Do the respective partnership roles properly exploit the comparative and complementary advantages of those involved? Are linkages with national agricultural research systems, civil society organizations, advanced research institutes, and the private sector effectively supporting the achievements of CGIAR research objectives as well as meeting partner needs and expectations, e.g., how effective have Centers been in capacity building of NARS?
 - b. Review of evaluations conducted by other CGIAR Members, including the independent World Bank Operations Evaluation Department Meta-evaluation of the CGIAR.
 - c. Evaluations of other Global Programs.
 - d. Pertinent development literature (including independent academic research on the CGIAR).
 - e. Center reports.
 4. Assessment of CGIAR financial and funding information to better understand the use of unrestricted funding.
 5. The Review Panel could also commission studies to address some of the specific issues that would be outlined during the inception consultation (as described later).
 6. The Review Panel would also use quantitative indicators in their assessment, where possible.

Methodology

The methodology for the Review will include the following components:

1. Interviews with Members, partners, Center staff, Center Board members, SO Unit staff, and other stakeholders.
2. Review of core CGIAR documents, such as the Charter, CGIAR/ExCo decisions, available reviews (e.g., System Office, Stripe Review of Corporate Governance of CGIAR Centers), and so on. Specific issues to look at are the programmatic and structural alignment efforts (for example, the Centers in Africa), and the system-wide management of financial risks.
3. Analyses and syntheses:
 - a. Reviews of Centers' External Program Management Reviews (EPMRs) together with the external reviews of the Challenge Programs (CPs) and Systemwide and Ecoregional Programs (SWEPs). In addition, the evaluations of impact studies, and other CGIAR evaluations including evaluations done by Centers can serve to assess the impact of the CGIAR on poverty reduction at large. Also the annual Performance Measurement System (PMS) can provide information on the system including accountability and transparency.

Reports

The evaluation panel is expected to prepare three reports:

1. *Inception consultation and work plan.* The panel will have two inception consultations with the ExCo Ad Hoc Advisory Group: (i) at the outset of the work to seek overall guidance and briefing from the Advisory Group; (ii) two to three weeks later the evaluation panel will present a work plan to the ExCo Ad Hoc Advisory Group seeking their feedback and suggestions.

The work plan will provide an opportunity to

- a. Further specify methodological and organizational aspects of the evaluation, including any provisions for needed meetings, interviews, site visit travel, new data collection, etc.
- b. Further specify the deliverables available for the interim report (please see below)

The panel will explore the feasibility of developing quantitative indicators that could possibly be used in the evaluation.

3. *Interim Report.* An interim report is expected by March 10, 2008.
4. *Final Report.*

The final full report should be submitted by July 2008 and will highlight clear and actionable recommendations. A draft final report should be sent by the panel for comments.

Budget

While the World Bank has agreed to defray a major part of the review cost, it would be important for other CGIAR Members to share the costs. The CGIAR Secretariat would be approaching other Members on this issue of sharing costs of the Review. Estimates are being generated.

Review panel

Composition

The Review Panel will be composed of a core team of five members:

- A panel chair with extensive expertise in evaluation, preferably of international research for development networks or global partnerships.
- A member with extensive experience on institutional governance issues and expertise in organizational structure issues in the public/private sector.
- A member with an understanding of networks or partnerships of multi-lateral organizations.
- Two members with extensive expertise in international agricultural research for development leading the program review through part 2 of the Review.

It would be desirable to have one to two members of the panel with significant CGIAR System knowledge.

Support and backstopping

One or two consultants will support the panel and report to the panel chair. The CGIAR Secretariat, the SC Secretariat, and the Alliance Office will help with providing necessary background documentation supporting the Review.

Process for Panel

The CGIAR Membership will be invited to nominate firms/institutions or individuals for Panel membership according to the above specified profiles. The TOR of the External Review will be posted on the CGIAR website inviting nominations and applications. The TOR will also be circulated on listserves of professional evaluation associations. A long list of all nominations and applications received will be prepared and presented to the ExCo Ad Hoc Group. The proposed final list identified by the ExCo Ad Hoc Group will be sent to ExCo/CGIAR for approval.

Executive Council (ExCo) ad hoc advisory group

ExCo established an “ExCo ad hoc advisory group to guide finalization of the TOR for the external review and panel composition. The group should be composed of 1 Alliance representative, 2 CGIAR Members, and 1 SC/SPIA member.” (Summary Record of Proceeding of the 12th Meeting of the CGIAR Executive Council May 2007).

As such the ExCo Ad Hoc Advisory Group will guide the finalization of the TOR and the selection of the Review Panel and will advise the review panel during the review, in particular during the inception consultation. At the same time, the ExCo Ad Hoc Advisory Group will maintain an adequate distance from the panel to ensure the independence of the review.

Tentative timeline and key next steps

1. ExCo Ad Hoc Group formed—June 29, 2007.
2. ExCo Ad Hoc Group meeting to finalize TOR and discuss panel composition and next steps—July 17, 2007.
3. Invite nominations for panel composition from July 17 to August 2, 2007, including nominations from CGIAR Membership, the ExCo Ad Hoc Advisory Group, open call for nominations and applications on the CGIAR website, wide dissemination of TOR to professional evaluation associations.

4. Long list of nominations and applications compiled and sent to ExCo Ad Hoc Advisory group—August 3, 2007.
5. Virtual meeting of the ExCo Ad Hoc Advisory Group on the selection of a short list of the panelists for consideration by ExCo/CGIAR—August 7, 2007.
6. TOR and panel composition approved by ExCo/CGIAR before September 30, 2007.
7. Inception consultation/work plan discussed with ExCo Ad Hoc Advisory Group by November 16, 2007.
8. Final Inception Report by December 14, 2007.
9. Interim Report on part 1 and part 2 by March 10, 2008.
10. Final report submitted by July 30, 2008.

Panel Members, secretaries, and advisors

Elizabeth J. McAllister, Panel Chair

Elizabeth McAllister has held leadership positions in international development for 25 years. She served in a number of senior positions at the World Bank including Director of the Operations Evaluation Department (OED; now the Independent Evaluation Group) where she directed a work program of 400 products a year to provide an independent assessment of World Bank/International Development Association operations, policies, and practices to satisfy the requirements of accountability to member countries. While leading the department, she was deeply involved with her staff in a number of major evaluations, including Forestry, Aid Coordination, Gender, the Special Partnership for African Development, and several Country Assistance Evaluations. Ms. McAllister led OED through a change process that fundamentally altered how the department operated. During her tenure, OED linked its work plan to the Bank's policy agenda and scaled up its products to country, thematic/sector, and global reviews from a previous focus on project evaluation, and developed a results framework to measure its own outcomes reported to the

Board in the Annual Report on Operations Evaluation. While at the Bank, Ms. McAllister also held positions as Director of External Affairs and United Nations Relations, Director of Special Projects, Strategy and Resource Management Vice Presidency; and Special Advisor to the Vice President on managing for results in the East Asia and Pacific Region.

Prior to joining the World Bank, Ms. McAllister held executive positions in the Canadian International Development Agency (CIDA) in operations and policy, including Director General, Performance Review (Evaluation, Internal Audit, and Results Based Management); Director General, Latin American and the Caribbean Region; Director of the China Country Program; Counselor, Development in Indonesia; and Director of Women in Development. During her career, Ms. McAllister represented CIDA and the World Bank in leadership positions in a wide variety of high level international forums, including OECD–DAC, the United Nations, the Organization of American States, and country coordination meetings.

Her education includes a Masters of Public Administration from Harvard University and a Bachelor of Arts in Political Science from the University of New Brunswick. She has taken courses in law and program evaluation and benefited from the World Bank's intensive Executive Development Program with Harvard University, INSEAD, and Stanford University.

Ms. McAllister is a recipient of a number of awards for community service and leadership, including a 1994 Governor General's Commemorative Medal in recognition of significant contribution to Canada.

Her recent clients include various programs within the World Bank, the European Commission, the Canadian Task Force on Afghanistan, the International Federation of the Red Cross Red Crescent, and the Caribbean Development Bank. In addition to her professional contributions, Ms. McAllister works pro bono for a number of organizations focused on disability, international relations, development, and international evaluation.

Keith Bezanson, Panel Member

Keith Bezanson holds degrees from Carleton University (BA) and Stanford University (PhD), as well as the degree of Doctor of Science (Honoris Causa) from the University of Sussex. His career has involved over 35 consecutive years of scholarship and leadership in international development.

Dr. Bezanson has taught, researched, and published on a wide range of development subjects, including African education, sustainable development, science and technology, poverty reduction, development effectiveness, the multilateral development system, the financing of development, institutional transformation, the East Asian financial crisis, and the provision and financing of international public goods.

In addition, Dr. Bezanson has held a number of senior leadership positions in international organizations, including Director of the Institute of Development Studies, President and Chief Executive Officer of the International Development Research Centre, Ambassador of Canada to Peru and Bolivia, Vice-President of the Canadian International Development Agency, and Vice-President of the Inter-American Development Bank. He recently (2006–07) served as Team Leader and Principal Author of the largest independent evaluation of a United Nations agency (the Food and Agriculture Organization) ever carried out.

He serves as Senior Advisor to the President of the International Fund for Agricultural Development and to the Executive Director of the Global Fund to Fight AIDS, Tuberculosis, and Malaria. He also serves as a trustee to a number of international development institutions.

Gopal K. Chadha, Panel Member

G.K. Chadha has a 38-year distinguished career in teaching and research. He is a Professor Emeritus at Jawaharlal Nehru University, New Delhi from where he recently retired as Vice-Chancellor. He is also a University Grants Commission Emeritus Fellow for Economics and serves as a Member of the

Economic Advisory Council to the Prime Minister of India. Recently, he has taken over as the Chief Executive Officer of the newly created South Asian University located in New Delhi. His teaching career includes international experience as a Visiting Fellow at the Institute of Development Studies, University of Sussex, England; a Visiting Research Fellow at the Institute of Developing Economies, Tokyo; and a Visiting Professor at the University of Mauritius. Professor Chadha is currently an Honorary Professor at Shenzhen University, China, and Nihon Fukushi University, Nagoya-Japan. Additionally, Professor Chadha serves as a member of the International Advisory Board of the Centre for Development Research, Colombo.

Professor Chadha is a recipient of numerous awards and distinctions for his contributions in the field of economics. He has recently been elected as the President of the Indian Economic Association. In prior years, he had been the President of the Indian Society of Agricultural Economics as well the Indian Society of Labour Economics. He is an author of 16 books and a contributor to 85 research papers in national and international research journals on a wide range of development issues relating to India and other developing countries of Asia, notably Indonesia and China.

In addition to teaching, Professor Chadha worked as a consultant to several international development organizations, including such United Nations agencies as the Food and Agriculture Organization, the International Labour Organization, the United Nations Conference on Trade and Development, and the Economic and Social Commission for Asia and the Pacific, and served on numerous international and national expert committees.

John Ouma Mugabe, Panel Member

John Ouma Mugabe is the Regional Director of the Eastern and Southern African Office of the International Union for Conservation of Nature (IUCN). Prior to joining IUCN, he was the Science and Technology Advisor to the New Partnership for Africa's Development and Secretary of the African Ministerial

Council on Science and Technology based in Pretoria, South Africa. He is an Associate Professor at the Institute of Technological Innovation University of Pretoria. In 2002, he was elected Fellow of the World Academy of Art and Science. He also serves on boards of several research and development institutes.

Dr. Mugabe holds a doctorate degree in political economy of science and technology from the University of Amsterdam, The Netherlands, and has published widely. He is the author of more than 20 monographs, editor of several books, and author of numerous research and conference papers on science, technology, and environmental policy issues.

Jeff Waage, Panel Member

Jeff Waage, OBE, is the Director of the London International Development Centre, a collaboration between six Colleges of the University of London.

Professor Waage was trained as an entomologist and ecologist and has made a substantial research contribution to the theory and practice of biological control and integrated pest management.

His international research management career began when he joined CAB International, where he was sequentially Director of the International Institute of Biological Control and Chief Executive Officer of CABI Bioscience. During this period he developed and managed a range of donor-funded collaborations with CGIAR and national agricultural research systems partners, including the successful biological control of insect pests on tropical crops and development of a biopesticide for the desert locust (the LUBILOSA programme with IITA). While at CABI, he cofounded, with the Food and Agriculture Organization and World Bank colleagues, the Global Integrated Pest Management Facility; advised the United Nations and World Bank on integrated pest management; and was the President of the International Organization of Biological Control.

Professor Waage cofounded, and subsequently chaired, the Global Invasive Species Programme, a project of the Global Environment Facility linked to the Convention on

Biological Diversity. In 2001 he became Head of the Department of Agricultural Sciences at Imperial College (formerly Wye College) and subsequently restructured this and environmental research at Imperial College. During this period he was also Chair of the Sustainable Agricultural Panel of the Biological and Biotechnological Science Research Council in the United Kingdom and a member of the Science Advisory Council for the UK Department of Environment, Food and Rural Affairs.

Karin Perkins, Panel Secretary

Karin Perkins has extensive knowledge of the CGIAR. She was an analyst in the Review Secretariat of the Third System Review, and she coordinated the World Bank Operations Evaluation Department's (OED) 2003 Meta-evaluation of the CGIAR, in which she also evaluated the system's governance and financing mechanisms. While working with the Foreign Agricultural Service of the US Department of Agriculture (USDA), she coordinated CGIAR-related programs between the USDA and the US Agency for International Development.

Ms. Perkins's other evaluation experience includes participating in OED's evaluation of the World Bank's Forest Policy, in which she was coauthor of a country case study on Brazil, and conducting an assessment of the results of World Bank agriculture projects in the Africa Region for the Bank's Agriculture and Rural Development Department. Among other professional positions, she managed a multistakeholder research program on protected-area management in the Dominican Republic for Cornell University's International Institute for Food, Agriculture, and Development; analyzed land-use changes in Ecuador at the Agricultural Policy Institute in Quito; and researched high-value food crop production in Latin America at World Resources Institute.

Most recently, Ms. Perkins has worked as a consultant in the World Bank's Agriculture and Rural Development and Environment Departments, outlining the Bank's strategy for forest law enforcement and governance.

Ms. Perkins has lived and worked in Latin America and Indonesia and has a master's degree in Development Policy from Cornell University, with a background in agricultural and resource economics.

Kenneth Watson, Panel Secretary

Kenneth Watson is a professional evaluator and evaluation methodologist. He has supported several major evaluation research efforts and has led assignments in the agricultural research sector.

Dr. Watson was the principal economist for the evaluation of the Eco-Research Program, a joint program of the three main Granting Councils of the Government of Canada (The Canadian Institutes of Medical Research, the Social Sciences and Humanities Research Council, and the Natural Sciences and Engineering Research Council), involving an assessment of research carried out at 27 universities and research institutions and an assessment of the effectiveness of the network itself. In addition, Dr. Watson was a principal in a multicomponent evaluation of the Asian Development Fund V–VIII for which he designed the evaluation, coordinated inputs from a large team of consultants, and wrote substantial parts of the draft of the synthesis report.

In 2007 he played a similar role for the Caribbean Development Bank, leading a team of five consultants to evaluate the Special Development Fund, Cycle 6. Dr. Watson has successfully completed three assignments for the International Fund for Agricultural Development, in the area of concessionary resource allocation models. He has also monitored or evaluated agricultural extension projects for the Asian Development Bank and the Caribbean Development Bank.

Dr. Watson is a member of the Institute for Risk Research (Canada) and has undertaken assignments related to food inspection (Auditor General of Canada), randomized field trials for veterinary biologics (Auditor General of Canada), the strategic plan of the Central Experimental Farm (Agriculture and Agrifood Canada), regional research facilities (Agriculture and Agrifood Canada), and international

programs to facilitate Canada's agriculture exports. He has led several evaluation studies on agriculture programs (including evaluation of seasonal storage facilities and related research). He has also undertaken evaluations of research facilities, including an assessment of salmon stock management research facilities (Fisheries and Oceans Canada).

Previously, Dr. Watson held a position of Full Professor (fixed term) at the Australian National University, Managing Business in Asia Program. He is the author of the Canadian Treasury Board Secretariat *Guide to Benefit Cost Analysis* and the Canadian Treasury Board *Guide to Evaluation Methods*. He is a recipient of the 2002 Contribution to Evaluation Award of the Canadian Evaluation Society, presented annually to a person who has made a significant contribution to the theory and practice of evaluation in Canada. In addition to professional publications, he has 12 peer-reviewed articles on evaluation. He is a member of the Campbell Collaboration for meta-evaluations and the development of systematic reviews across countries and disciplines.

Dr. Watson holds a doctorate from Harvard University in economics and public finance.

Joan Barclay, Panel Senior Advisor

Joan Barclay has over 20 years of executive level experience in the development, growth, and leadership of nonprofit and for-profit organizations. Her expertise focuses on developing actionable strategies that align organizational vision and mission with daily operations. Ms. Barclay has a successful track record working with senior executives to identify core competencies and to capitalize on opportunities that grow and strengthen the organization's key programs and services. As an independent consultant and President of Barclay Associates, she has provided financial analysis and strategic direction to the senior management and nonprofit Board of Directors of National Geographic, the US Naval Institute, Public Radio International, and the Community Services for Autistic Adults and Children.

During her tenure with Booz Allen Hamilton's Change Management Division, Ms. Barclay led a team of analysts in a \$30 billion restructuring of a US federal healthcare organization, including the evaluation of key operating functions and processes. She was also instrumental in developing the strategic plan for Booz Allen's Global Healthcare Business spearheading the industry analysis of growth markets, competitors, trends, and opportunities.

Prior to starting Barclay Associates, she was a Vice President and Chief Financial Officer with Time Life, Inc., where she managed the financial operations of a \$250 million division and was instrumental in the successful launch of new products and services.

Ms. Barclay holds a BS in Economics and an MBA from the Wharton School of the University of Pennsylvania. She has been a Chartered Financial Analyst since 1990.

Francisco Sagasti, Panel Senior Advisor

Francisco Sagasti is Senior Associate at FORO Nacional/Internacional, Chair of the Board of the Science and Technology Program at the Office of the Prime Minister in Peru, member of the Board of Governors of the Canadian International Development Research Centre, and member of the international advisory board of The Lemelson Foundation. He advises and consults with international organizations, private foundations, and public sector agencies in a variety of subjects, including development financing, social policies, development strategies, science and technology policies, international relations and development cooperation.

Previously, Dr. Sagasti has been Director of the Agenda PERÚ program at FORO Nacional/Internacional; Chief of Strategic Planning and senior advisor at the World Bank; visiting professor at the Wharton School of Finance, University of Pennsylvania; and chairman of the United Nations Advisory Committee on Science and Technology for Development. Dr. Sagasti was a founder and executive director of GRADE, a policy-oriented think tank in Peru; advisor to

the ministers of foreign affairs, education, industry and the prime minister; advisor to the Chief of the National Planning Institute and the National Council for Science and Technology; Vice-Chairman of the Board of the Industrial Technology Institute in Perú, and consultant to numerous private, public and civil society organizations. He has also taught at the Universidad del Pacífico and the Pontificia Universidad Católica del Perú and has been a visiting lecturer at several universities in the United States, Europe, and developing regions.

Dr. Sagasti holds a Ph.D. in operations research and social systems sciences from the University of Pennsylvania and engineering degrees from the National Engineering University in Lima, Peru and Pennsylvania State University. He is the author of more than 20 books and monographs of about 200 papers and is a frequent contributor to Peruvian newspapers and magazines.

Notes

1. This System Office External Review focused on assessing the synergies and added value of operating as a System Office, but it did not review the individual units composing the System Office, as those are reviewed individually.
2. The term *alignment* has been used in the CGIAR to encompass (i) alignment among Centers in terms of program, governance and corporate services, (ii) alignment at system level among Members, and (iii) alignment between the different components constituting the CGIAR System (i.e. Members, Science Council, Centers, and System Office). Alignment in this context refers to the capacity to work more effectively together toward the accomplishment of the mission of the CGIAR.
3. In addition, the review would also help CGIAR meet requirements of the World Bank Development Grant Facility whereby grant recipients need to be evaluated every three to five years. The World Bank has contributed \$50 million a year in the several past years to the CGIAR, and is the largest provider of unrestricted funds to the system. It provides the system with its Chair and Director, and houses the CGIAR Secretariat. The strategy used by the World Bank in the past several years is to support the Centers with unrestricted resources (general support) and the reform program initiated in 2001.
4. The SO includes a list of nine units—Central Advisory Service for Intellectual Property, CGIAR Secretariat, Chief Information Office, Alliance Office, Gender and Diversity Program, Strategic Advisory Service on Human Resources, Internal Audit Unit, Media Unit, and Science Council Secretariat.

Methodology and sources of information

Shareholder and stakeholder consultations

This appendix covers shareholder and stakeholder consultations, a list of people consulted, and a summary of the Independent Review Panel survey of informed stakeholders.

Center visits

Because time and resource constraints made it impossible for Panel members to visit all Centers during the Review, Panel members visited selected Centers. These Centers included Bioversity, ICRISAT, IFPRI, IITA, ILRI, IWMI, and World Agroforestry.

The visits were not intended to evaluate Centers individually. They were intended to enable the Panel members to develop an understanding of the Centers collectively—with a reasonably large sample—and to go into Review questions in depth with the Centers. This was vital to a successful Review.

Each Center visit included interviews with the Director General, the Board Chair (where possible), senior scientists and young scientists, CGIAR member representatives (where possible), the national agricultural research systems, and stakeholder organizations. Key topics addressed during each visit included:

- The Center's focus (strategy, scenarios).
- The Center's funding (restricted and unrestricted, other resource mobilization).
- The Center's stability profile and financial performance.

- The Center's productivity (outputs).
- The Center's impact (outcomes).
- The strength of the Center's partnerships (specific links within the CGIAR and outside).
- Perceptions at the Center of the value added by the CGIAR (incremental funding, scientific priorities advice, integration of gender perspectives, Challenge Programs, and administrative support).
- Willingness at the Center to embrace possible reforms to the CGIAR System.

Surveys and interviews

The Independent Review Panel survey of informed stakeholders was not sample-based. Instead, the Panel surveyed all the people—about 240—who had held certain positions in the CGIAR or the Centers during the five years preceding the survey. These included:

- Directors General of the Centers.
- Deputy Directors General (Research).
- Chairs of Center Boards.
- Members of the Science Council.
- System Office professional and executive staff.
- Challenge Program staff.
- Representatives of CGIAR members.

With an overall response rate of 85 percent, the Survey gave the Panel significant input from knowledgeable System stakeholders across a broad spectrum of issues relevant to the Review's objectives.

Persons consulted

CGIAR members	
Peter Core	Director, Australian Centre for International Agricultural Research (ACIAR), Australia
Jos Kalders	Directorate General for Development Cooperation (DGDC), Ministry of Foreign Affairs, Belgium
Alexandre Cardoso	Office of International Relations, EMPRAPA, Brazil
Elisio Contini	Agricultural Economist, EMBRAPA, Brazil
Francisco Reifschneider	Past CGIAR Director, Brazil
Charles Haines	Multilateral Programs Branch, Canadian International Development Agency (CIDA), Canada
John Jackson	Director, Canadian International Development Agency (CIDA), Canada
Iain MacGillivray	Senior Program Officer, Canadian International Development Agency (CIDA), Canada
Helene Corneau	Director General, Canadian International Development Agency (CIDA), Canada
Wendy Lawrence	Gender Advisor, Africa (Retired), Canadian International Development Agency (CIDA), Canada
Huajun Tang	Vice President, International Relations, Chinese Academy of Agricultural Sciences (CAAS), China
Arturo Vega	Ministry of Agriculture and Rural Development, Colombia
Jean-Luc Khalfaoui	Director General, Research, European Commission
Remy Noe	Director General, EuropAid, European Commission
Paolo Sarfatti	Agricultural Research for Development, Policies for Sustainable Development, European Commission
Ayman Abou Hadid	President, Ministry of Agriculture and Land Reclamation, Egypt
Marja-Liisa Tapio-Biström	Senior Officer, Ministry of Agriculture and Forestry, International, Finland
Isabel Alvarez	Director, Research and Extension Division, Food and Agriculture Organization of the United Nations (FAO)
Mafa Chipeta	Sub-Regional Coordinator, Eastern Africa, Ethiopia, Food and Agriculture Organization of the United Nations (FAO)
Eric Kueneman	Chief, Crop and Grassland Service, Agriculture and Consumer Protection Department, Food and Agriculture Organization of the United Nations (FAO)
Alexander Müller	Sous-Director General, Food and Agriculture Organization of the United Nations (FAO)
Terri Raney	Senior Economist and Editor, <i>The State of Food and Agriculture</i> , Food and Agriculture Organization of the United Nations (FAO)
Pierre Fabre	Executive Secretary, International Agricultural Research Commission (CRAI), France
Marlene Diekmann	Research Advisor, Advisory Service on Agricultural Research for Development, Germany
Wolfgang Kasten	Project Manager, GTZ, Germany
Mangala Rai	Secretary, Indian Council for Agricultural Research (ICAR), India
Garvan McCann	Senior Development Specialist, Technical Section, Irish Aid, Department of Foreign Affairs, Ireland
Jean Lebel	Director, Environment and Natural Resource Management, International Development Research Centre (IDRC)
Maureen O'Neil	President, International Development Research Centre (IDRC)
Pascal Sanginga	Senior Program Specialist, Regional Office for Eastern and Southern Africa, International Development Research Centre (IDRC)

(continued)

Persons consulted (continued)

Rodney Cooke	Director, Latin America and the Caribbean, International Fund for Agricultural Development (IFAD)
Shantanu Mathur	Coordinator, Grant Program, Technical Advisory Division, International Fund for Agricultural Development (IFAD)
Jafar Khalghani	Deputy Minister and Head, Agricultural Research and Education Organization, Iran
Marina Puccioni	Technical Director, Ministry of Foreign Affairs, Italy
Takuji Sasaki	National Institute of Agrobiological Sciences (NIAS), Japan
Masahiro Nakata	Global Issues Cooperation Division, International Cooperation Bureau, Ministry of Foreign Affairs, Japan
Keiichi Sugita	Deputy Director, Global Issues Cooperation Division, International Cooperation Bureau, Ministry of Foreign Affairs, Japan
Romano Kiome	Permanent Secretary, Ministry of Agriculture, Kenya
Ephraim Mukisira	Director, Kenya Agricultural Research Institute (KARI), Kenya
Jeroen Rijniers	Senior Policy Officer, Cultural Cooperation, Education and Research Department, Ministry of Foreign Affairs, The Netherlands
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Summary of results of Independent Review Panel survey of informed stakeholders

The survey was conducted in early 2008 as part of the work of the Independent Review Panel. The results were intended to complement visits to the Centers and personal interviews that were undertaken by members of the Review Panel during the same period.

It was sent to 237 individuals in five target groups: the Executive Council and other member representatives, Board Chairs and Center Executives, Challenge Program representatives, the Science Council, and professional staff. Some 201 individuals answered

the questionnaire, for a response rate of 85 percent for the target groups together.

The intent of the survey sample was to examine how well those knowledgeable about or directly involved in managing the CGIAR network think it is being managed and what corrective steps might be taken to improve this. Others involved in the network—such as the large number of scientists doing Centers' work, their partners (national agricultural research systems, advanced research institutes), or the direct beneficiaries of their efforts (farmers, fishers)—were not asked to respond. But Panel members did interview the Centers' scientists, partner representatives, and others during their overseas visits. It is interesting

that their opinions did not differ substantially from those of survey respondents.

Survey questions focused on a number of areas, including the development and implementation of center research priorities; the roles of the World Bank (financial and other), gender, and diversity; the roles and effectiveness of the Science Council, of CGIAR partnerships, and of CGIAR members and cosponsors; the Challenge Programs; funding and financial management; and governance reform. Several questions compared the importance of an issue with the effectiveness or adequacy with which it is being addressed. Over a third asked respondents to select possible actions that might deal with the issues identified and invited them to comment on these and related concerns.

General findings

1. *The effectiveness deficit—a most pressing challenge*

Although respondents judged most CGIAR system actors, functions, or activities as important or very important, they were almost always rated significantly lower with respect to effectiveness. One clear exception was the World Bank in its cosponsorship role, with 64 percent importance and 54 percent effectiveness ratings.

2. *Roles, responsibilities, and authorities*

The survey revealed clearly that responsibilities and authorities are not well balanced. Throughout, respondents pointed to the need to clarify, strengthen, change, and redistribute roles, responsibilities, and authorities with respect to CGIAR System actors, defined broadly to include state and organizational donors, cosponsors, and partners. It was also apparent that many respondents did not know who had responsibility and authority to make decisions or get things done.

3. *The need for better communication*

A significant number of respondents pointed to problems with trust and communication between the Centers, the CGIAR, the Science Council, and external stakeholders.

4. *The need to manage partners and the partnering process well*

Throughout the survey, and especially in those questions that focused specifically on partnerships, respondents stressed the importance of healthy partnerships within the CGIAR System and with sponsors and other outside partners. They also offered several suggestions on how these partnerships might be managed more effectively.

5. *Opinions—some shared, others polarized*

There was a surprising level of agreement about the importance or effectiveness of a particular CGIAR actor or activity. Differences of opinion tended to be much more polarized in the respondents' more open-ended comments, especially where there was already some disagreement (for example, the importance and effectiveness of Challenge Programs). There was also a great deal of consistency between groups on the relative priority of the options offered for discussion in the questions on how to improve a given situation (80–100 percent agreement on relative priority of options for 15 of the 18 “how to improve” questions).

At the same time, there were some very significant disagreements—between respondent groups and individual respondents. These were particularly evident, for example, in comments about the kind of organization respondents want to see the CGIAR become (more centralized or more decentralized with respect to decisionmaking) or how resources should be allocated (more or less performance based).

Findings by topic

1. *Center research priorities*

Respondents generally agreed that the CGIAR and Centers are highly effective in the sustaining biodiversity and genetic improvements research areas. Effectiveness ratings were relatively low for agricultural diversification and policies and institutions, and in the midrange for sustainable resources. Respondents identified some reasons why these priorities are not being met as effectively as they might be.

2. *Roles of the World Bank*

Nonfinancial roles. Between 44 and 69 percent of respondents thought that having the World Bank provide the Chair of Executive Committee, the Director of the Secretariat, and secretariat offices was important. The Bank's exercise of its convening power received an importance rating of 82 percent (very important). However, a number of respondents were concerned that these functions should be more independent from the Bank.

Financial roles. The World Bank is a donor and cosponsor, a mobilizer of contributions from other donors, and the manager of the Multi-Donor Trust Fund. Sixty-four percent indicated that it is appropriate for the World Bank to perform all these. And 54 percent believe it is performing these roles effectively. There were some concerns about whether the Bank is in a conflict of interest by fulfilling both financial and governance roles, about the lack of openness and transparency, and related issues.

3. *Gender and diversity*

Respondents identified a need for more work to make the gender and diversity perspective an integral part of CGIAR and Center culture, despite some potentially difficult challenges.

4. *Science Council*

The Science Council's roles, responsibilities, and relationships with other CGIAR System actors were frequently questioned. Respondents focused on (a) the nature, quality, and quantity of Council personnel and other resources; (b) the degree of creativity, innovation, and appropriate risk-taking needed to support ground-breaking research; and (c) ways to improve performance.

5. *Partnerships*

The vast majority of respondents believe that partnerships with national agricultural research systems, advanced research institutes, the private sector, and between Centers are important or very important, and most were judged to be effective. Suggestions were also made about how to make them more effective.

It is interesting that partnerships with the private sector were generally devalued in comparison with the other partnerships.

6. *Cosponsors in addition to the World Bank*

In addition to the World Bank, there are three other cosponsors: the Food and Agriculture Organization, the United Nations Development Programme, and the International Fund for Agricultural Development. Respondents questioned (a) whether the concept of "cosponsor" is useful and should be continued; (b) what additional powers and responsibilities they should have; and (c) whether they should become more involved in the CGIAR, the Centers, and Challenge Programs and, if so, how.

7. *Challenge Programs*

The Challenge Programs were not highly rated, and there was general uncertainty whether they should stay or go. Many feel they are poorly managed, costly, and competing against the Centers for financial and other resources

8. *Funding and financial management*

The key issues with respect to unrestricted funding were the need to: (a) reverse declining levels of unrestricted funds; (b) improve management to build trust and thereby attract more unrestricted funds from donors; and (c) manage the relationship with donors better. Some key issues identified on financial management were: (a) a concern that there is a general lack of appreciation for the importance of risk management; and (b) the need to have qualified people in place across the system who understand finances, audit, and risk management.

9. *Governance reform*

The general consensus was that reform efforts since 2002 have, at best, been moderately effective—though they have been costly, both in terms of money and administrative burden. Many respondents suggested changes that would improve governance in the future, some of which were discussed with other issues. Respondents also identified some key barriers to reform and provided ideas on how they might be overcome.

Expert commentaries on the Technical Report

Commentary by Margaret Catley Carlson

The Independent Review Panel has considered the efficiency, effectiveness, and sustainability of the CGIAR in order to make recommendations on how the CGIAR can be better positioned to address emerging issues of food and agriculture of developing countries.¹

Five overarching contributions of the Independent Review

1. The amount of information supplied is extraordinary—probably far beyond the capacity to absorb it. The chapter on governance is an exceptional document in the history and analysis which should be read by all in the System, and used rather than repeated or redone in future analyses.
2. The Independent Review has gone further than earlier reviews in pointing out some of the reasons for the dysfunctions in the current system. It is very candid about causes and symptoms of the malaise—diversion of effort, too many layers of inconclusive decisionmaking, lack of clarity in the decisions taken. This gives Members a real opportunity to ask themselves whether suggested solutions in either the Independent Review or the Working Group reports would actually address the real problems in the system as set out in the Independent Review.
3. There are sensible recommendations which draw a strong and necessary link between program impact deficiencies and the absence of a more professional gender approach (more emphasis on programmatic dimensions using proven methodologies, rather than the current

focus on personnel and staffing as the principal measure of good gender input) and partnership (should grow organically and relate to the need to fulfill the system mandate and promote implementation and dissemination). These need to be adopted. The existing rhetoric on private sector collaboration needs to be subject to serious exploration of actual possibilities—as suggested.

4. The report recommendation for declared and specific transitional arrangements and the call for “directive, top down approaches with specified milestones” should be heeded—no matter which series of structural changes is adopted, Independent Review or Working Groups.
5. The report notes that the combination of donor sovereignty, center independence, and consensus decisionmaking has over time gotten the system where it is, and—unless modified—will nourish the current problems, not provide solutions.

Ten inconvenient deficiencies and how the Independent Review recommendations would address some of these

1. *No consensus on change direction.* All agree on the urgent need for change, but there is no consensus on the direction such change must take. In particular, how can we engineer the essential consensus bargain of an assured increase in the flow of unrestricted resources in return for guaranteed (but unspecified) output and changes in behavior?
 - a. The Independent Review does not suggest how to get to consensus. Once again, the recommendation

is for structural change in the (unproven) hope that such change will provide new structures within which it will be possible to engineer the needed consensus.

- b. The suggestions of my coreviewer, Uma Lele, should be read with great care—it may now be essential to hammer out agreement on how to get on with it now among a small core group which is capable and willing to support an accord with resources.
2. *Considerable work effort misplaced.* The current system exacts an extraordinary price in focusing of the time and effort of managers on system issues, rather than those issues related to the agricultural improvement and poverty-reduction mandate—and this has continued and intensified over the past half-decade. At the same time those charged with governance, such as the Executive Council, are overburdened with reports and analysis and spend much time on issues best left to management purview.
 - a. The Independent Review report has documented and described this well. The report suggests and offers concrete steps on the separation of governance management.
 - b. The report suggests removing the Science Council from some management and system issues, which could reduce part of the distortion caused by too many entities giving management advice.
 - c. The complex of issues surrounding the Secretariat are set out but not resolved.
 3. *Duplication and churn in the system (a related but not identical issue).* It is symptomatic of severe problems in the system that this Independent Review has been undertaken at the same time as a parallel exercise of Working Groups has been considering a number of the same issues. It is not the first time that one mega-exercise has begun while another is finishing or mooted. The result is perpetual churn

in the system. And yet neither review really suggests how to get to a position where someone has the authority and the accountability to make decisions that do not impose such duplication and heavy costs on the system. Someone or some group must have the authority to pull the major players into a small room and emerge with a compromise that cuts into this cycle and creates reasonable, cost-conscious decisions.

- a. There is an accelerating mountain of requests and demands on the Centers for reports, workplan analyses, evaluations, appraisals, statements, and restatements of their activities. There is also an accelerating mass of material for the Executive Council to work through. This is noted in the Change Reform panels and in the Independent Review—but neither report states what will be put in place to stop this.
 - b. Nobody can say “no” in the system and get the workload focused on the essentials. (Instead of concentrating on defining the core, central, toughest issues, the definitional meetings for this Independent Review expanded the scope to the point where the excellent final product stands a real chance of never being read).
 - i. The Independent Review recommendations would help out somewhat in that they reduce the mandate of at least one player, the Science Council, to intervene and demand work be done on a number of system and management issues.
 - c. The system needs to adopt a UN habit and impose strict limits on page length of documents (e.g., 10 pages with annexes, etc., put on the web). The current documentation flow is absurd.
4. *Lack of international “voice” on agricultural issues.* The Independent Review report notes that the CGIAR System lacks

the way to channel its best advice to international conferences on key issues of climate change and food security. This is puzzling given that the products are often at hand: the massive and well packaged Comprehensive Assessment on water, the IFPRI work on subjects from the impact of rural roads on agriculture to biofuels to alternative investment patterns, the very compelling ILRI work on threats to biodiversity in livestock, etc. Much of this work has been made clear and accessible. Some effort might be devoted to working out what specific effort is needed to improve the CGIAR voice in the clamor—perhaps more important than, or at least an essential adjunct to, further structural reworking.

- a. There is also a difference between coordinating and facilitative mechanisms, such as one that might exist between the Food and Agriculture Organization and Alliance to avoid the need to conclude seven agreements with seven Centers in order to have program cooperation. Coordinating mechanisms, on the other hand, lead to the syndrome of repeated annual coordinating meetings with X, Y, and Z—and more frustration at the lack of output.
- b. This underlines the source of one of the continuing pressures to create more central, work-directing organs. There are complaints reported in this chapter about “no single point of entry”—for the Food and Agriculture Organization, for the private sector, etc. One answer to that is “why should there be?”—or, more precisely, “for what exact reason should there be?”, if the Centers are entities pursuing different research agendas focused on improving the situation for poor farmers in their area of competence? A point of entry that is good at providing a Directory (who does what, where) will not lessen much of the frustration.

What these entities are talking about is a point of entry that can ensure that actions take place by designated Centers. Before effecting this degree of central coordination, one would have to be awfully sure that the golden ring exists—is the Food and Agriculture Organization really going to create an improved, encompassing global food strategy that the whole world will agree with, if Centers coordinate? Are the imaginable private sector collaboration gains really there if there were a coordinating point of entry?

5. *Financing is restricted, directed, and does not cover all costs for which project monies may be made available.* The useful and candid review of donor comportment does not suggest how these donors’ domestically derived strictures are to be overcome in the proposed Fund for Agricultural Research. If adopted, this Fund could go a good direction in solving the financing issues. As most of the current discussion is focused in this area, I concentrate on the other issues.
6. *Lack of ambitious strategies focused on development breakthroughs and susceptible to attracting financial inflows.² I will leave to my very distinguished coreviewer the discussion on the needed precedence of form vs. function.* The Independent Review locates the responsibility for strategic development in the proposed Consortia, close to the Centers, in dialogue with the Fund. This is undoubtedly the correct location for this function. A number of short specific dialogues based on short specific papers should be the main vehicle for establishing system directions and address issues.
7. *Unrealistic goal language.* The language of the system goals is not appropriate for what the CGIAR Centers can actually deliver. The emerging issues of food and agriculture of developing countries must be addressed by policy reform and investment within those countries. The

CGIAR Centers can advise on both but cannot deliver either. The CGIAR Members which could deliver more in these areas have not to date used the CGIAR venue to articulate or negotiate their own contributions to investment or policy change. The unrealistic goal statements lead to frustration. It is probably a pious hope to suggest that goal statements should be set in terms of yield improvements, rural stabilization and improvement, and environmental preservation, but it would lead to systemic goals more in line with deliverables.

- a. CGIAR cannot even have large-scale impact on yields and rural development without either substantial strengthening of national agricultural research systems in the poorest countries, or more acceptance of the dissemination and training and information-dispersion role of the Centers. Good, even great scientific breakthroughs and technology do not sell themselves or autodistribute. Pilot projects rarely foment change outside the project areas without intensive ongoing investment. The very slow uptake of New Rice for Africa rice is only the latest example. The Independent Review speaks to the need to find more consensus on the upstream-downstream debate; perhaps there needs to be more differentiation among Centers or Center activities to set out where downstream work is needed and welcomed by the system?
 8. *Partnerships not effective.* The effort to foster and maintain partnerships is highly resource intensive, and these resources come from time and money that has alternative uses. Forming partnerships because of system pressures or political correctness, or trying to forge partnerships where the shared interest and opportunities are tenuous at best, or because these are essential to a performance reporting system, can be highly distortive. Partnerships are not a virtue
- in themselves. A well running research center would want to form relationships with those that could contribute to its mandate. Elaborate systemwide structures and processes which are not based on constructive opportunism (as most successful partnerships are) end up being expensive, time-consuming, and not successful by anybody's measurement of them. Frustration—and anger with the Centers as the operators—results.
- There is also a misleading tendency to see a progression where none exists, i.e., the suggestion that when national agricultural research systems get more capable, part of the funding that goes to Centers should be allocated instead to national agricultural research systems. This is logical only if the activity is dissemination/extension or if national agricultural research systems are producing international public goods and/or organizing their work, time, and resources in such a way as to share results and resources with other countries. At that point this would indeed be logical.
- a. The Independent Review offers helpful guidance material on partnerships—if these criteria are not satisfied, there may not be a need for partnerships for the case in hand.
 - b. The Independent Review has repeated the assertion in several External Program and Management Reviews that Centers should be collaborating with the private sector—but once again it is not set out as “why, and to do what”? The recommended enquiry is well needed.
9. *Policy role not well developed.* In fact, policy may not be a principal strength of the CGIAR System. It is interesting that no part of the Panel Review or the Working Groups picks up on the World Bank meta-evaluation which questions why the Centers should be involved in policy (except of course where it is natural for them to be so). Turning the CGIAR inside out so that there is a “policy spokesperson” is

odd; IFPRI speaks to the issues on which they have studied policy; ILRI has strong views on livestock policy, etc. It is not evident that the Consultative Group has an overall policy recommendation role—or that the value added to the extraordinary effort to create this capacity would lead to other than generalities.

a. Similarly, the insistence on an “integrated CGIAR policy view on Africa” is problematical, and advocates of such an approach have not to date outlined what such an integrated policy might contain given that there are 40+ countries with different climatic zones, levels of development, rainfall, etc. Rather, it is suggested that the absence of this integrated view supports the need for structural change. Decisions turn into mechanisms indeed.

10. *Inconsistencies with Paris Declaration and evolving development assistance trends.* Clearly there is a need for the CGIAR system to work in harmony with the broad lines of the Paris Declaration to the CGIAR system. It is not totally clear how the ownership of developing countries will devolve from a new arrangement between donors.

Notes

1. These comments are made in my personal capacity and reflect long involvement in the CG as a donor (President of CIDA 1983–89), as a Board member (ICARDA and IWMI) and Board Chair (ICARDA). Perhaps most germane, I chaired the 2001 Change Management Team. It is also of interest that I have sat or Chaired the Boards of two non-CG agricultural research organizations, CABI and the International Fertilizer Development Center. This offers an interesting perspective indeed on pros and cons of CGIAR membership.
2. This was of course the main rationale behind the Challenge Programs which, it was hoped would create small, short lived parts of the system working very differently from Centers, rather than Center-like creatures tackling complex and long standing subjects with full system strictures competing for funding, influence, and longevity.

Comments by Uma Lele

As per the terms of reference, these comments focus on the analysis, findings, conclusions,

and recommendations of the Independent Review of the CGIAR.¹ The review originated as part of the requirement of the World Bank’s Development Grant Facility that such an independent review be carried out every three to five years. It was expanded into a full-fledged external review to consider efficiency, effectiveness, and sustainability of the CGIAR, and to “assess whether the CGIAR is well positioned to address emerging issues of food and agriculture of developing countries and to make recommendations.”²

General comments on the scope, analytical approach, findings, conclusions and recommendations

Its overall conclusion seems to be that the system is inefficient, has been effective in several areas, but as currently managed it limps along—however, without being in a position to address the emerging issues of food and agriculture of developing countries.

The report focuses on improving governance first, separating financing from management of the centers through a firewall, letting the Alliance take charge of developing and managing programmatic approaches, and letting the appointed new governors address all the rest of the issues of the system identified in the report. It is a substantial report rich in content. There is a great deal to absorb in the 15 chapters in a very short time, even for those deeply knowledgeable about the CGIAR, its history and evolution. Whether those in key positions to determine the CGIAR’s future would have the time to absorb its full content, and, even more important, to devote the time needed to develop thoughtful proposals attuned to the future needs of the system is a question. The question has acquired added importance since nearly 60 actors in the system are also concurrently involved in their own parallel Change Management exercise, with the input of time and financial resources of comparable magnitude to that of the external evaluation.

Issues relate to the content of this report as well as to its ownership in the system. To make my comments useful to the External

Review in the context of the Change Management process, and given the time pressures under which both are operating during discussions in IRRI, I provide support below for the following propositions:

1. The Independent Review's methodology and approach has been similar to that of the Operations Evaluation Department's (OED) meta-review completed in 2003, with some major differences outlined immediately below.
2. The Independent Review updates the meta-review picture in many areas. But its scope is more limited than that of the OED meta-review. The meta-review focused on the implications of the changing global science. It also explored implications of the greatly differentiated national agricultural research systems for the CGIAR's comparative advantage and core business.
3. The Independent Review's focus on improving governance first is problematic for three reasons. First, I show why form should follow function, and not the other way round, as the Independent Review argues. Second, given the deep and long standing divide among the CGIAR's key donor Members on the focus on upstream vs. downstream research, definition of the CGIAR's function has been a challenge for quite some time without any resolution. No amount of governance reform, nor periodic more vision and mission statements—as the CGIAR has done over the last two decades—alone can address that challenge. Third, a form already exists or can be created relatively easily for the purposes of reforming the CGIAR, if there is political will among the key donors of the CGIAR to use the existing knowledge and to act. Reforms based on a partial view of the system, whether from this external review or from the latest Change Management Exercise, will continue to be detrimental to the system.
4. While there is general agreement on the current state of affairs in the CGIAR,

well described in the report, there is no consensus on how to reform the system in a manner that is well positioned for the 21st century and yet has the broad ownership of the key actors in the system (namely, the CGIAR Chair and Secretariat, three or four key donors—the World Bank, the United States, and the European Union representing its Members with a coherent voice—the Centers, and the Science Council). Developing countries have had a small voice in the system ever since it was established, and even with increased membership, they have either not exercised it effectively or have not succeeded in getting their concerns across, except to press for retention of Centers in their countries. Regrettably, as this report points out yet once again, they have not played their part effectively. I concur with the quote from the three Gurus of Agriculture and Rural Development, Yujiro Hayami, Michael Lipton, and Harris Mule, who served on the Meta Review's External Advisory Panel—namely, that the CGIAR is facing the challenge of managing a global commons.

5. What I recommend at the end of this note builds on, but is different from either the Independent Review's conclusions and recommendations or those of the Change Management, seen from my own lens on the CGIAR system and from the perspectives of developing countries by now for nearly 40 years (oops—it has been that long!). Prospects for a new vibrant CGIAR emerging remain unclear. And yet the synthetic view of the Change Management and Independent Review conclusions and recommendations interspersed with my own thoughts might well be worth considering in IRRI.

Notwithstanding the differences in emphases noted above, the intended purpose of a periodic, independent, systemwide, external evaluation which OED recommended to the World Bank remains valid. It was to achieve transparency and accountability of the system,

not just to its immediate stakeholders, but to the membership at large.

The CGIAR has had an impressive evaluation record at the Center level, but it has been historically reticent to undertake System-level evaluations (a distinction the Independent Review does not make) and to learn from them. The World Bank's Independent Evaluation Group is increasingly encouraging such System-level evaluations of global programs, using common guidelines and standards, given an ever larger flow of donor aid going through global partnerships. Assessing aid effectiveness of these partnerships has become more important, but more difficult, because accountability for performance is diffused—as the CGIAR well demonstrates. Yet assessing their impacts or achieving reforms in well intentioned, but ill conceived programs too has become a daunting task.³ An independent assessment can potentially provide a useful input into reforms.

I hope therefore that the Independent Review will be published and disseminated widely, after it has been fully vetted for its evidentiary base, factual accuracy, scope, and content. I also hope it will contribute to the discussion of the future directions of the CGIAR which the Change Management Process has currently underway.

Detailed comments

Analytical approach, evidentiary base, scope, and methodology. The review is based on the meta-evaluation of the CGIAR's own voluminous output completed since 2001, the CGIAR's own financial data, the use of the CGIAR's other extensive measurement and reporting systems, and interviews and surveys of stakeholders. The method is similar to the one deployed by OED's meta-evaluation (which had reviewed nearly 700 reports and consulted well over 265 stakeholders). This review updates OED's analysis in useful ways and expands it in several areas, e.g., in reporting on the poor functioning (according to the findings of the Independent Review) of the fourfold reforms set in train in 2001, on the

findings of Science Council's new evaluations of policy and natural resource management research, and on the treatment of issues of gender and diversity—including particularly the decline in the representation of developing countries in management positions, among others.⁴

There are a few key distinctions between the Independent Review and the OED meta-review in the methodological approach and scope.

- The Independent Review has had the benefit of visits to CGIAR centers. The OED meta-evaluation did not.
- The OED review commissioned papers from national agricultural research systems in Asia, Africa, and Latin America to explore the implications of the changing status of the national agricultural research systems to the CGIAR reforms—an aspect which is currently lacking in this review, as well as in the ongoing Change Management exercise.

A broader view would have led the Independent Review to explore the implications of its very interesting findings for the reforms needed. Several examples follow.

National agricultural research systems and CGIAR programs. The reviews of the Systemwide and Ecoregional Programs stress the difficulties of scalability and replicability, and the importance of—but the absence of—a measurement of environmental impacts. Without the active participation of national agricultural research systems in research and application there is limited, if any, prospect of Systemwide and Ecoregional Programs having large-scale impacts, except when they focus tightly only on productivity mainly through germ plasm improvement. Moreover, even in some of the successful Systemwide and Ecoregional Programs, such as the Alternatives to Slash and Burn and Rice and Wheat Systems, with which I happen to be familiar, the implications for action—in policy and operational terms—need the entire gamut of national systems.⁵ There are interesting tidbits in the

report on the CGIAR study of its impacts in South Asia and Sub-Saharan Africa in drier areas. It suggests that the impact has been greater in South Asia than in Africa. I suspect that is because of the stronger national agricultural research systems in India, which has done more applied and adaptive research on the crops in drier areas (a matter of long standing controversy between India and the International Crops Research Institute for the Semi-Arid Tropics), and is due to a stronger, but by no means an ideal, service-delivery system. However, neither perhaps the specific impact studies of the CGIAR, nor this external evaluation explore its full policy or institutional implications. The meta-review had noted that the role of strong national research and delivery systems is frequently underrecognized in the CGIAR's impact evaluations, which tend to take credit largely to its own activities. This also means some national agricultural research systems, too, can compete and lead Challenge Programs through South-South cooperation. Phil Parry has made this same point by meticulously documenting the importance of investment in agricultural research in developing countries together with the CGIAR.

CGIAR's poverty impacts. There is no possible way that—acting alone, or mimicking in small ways the national agricultural research systems' functions through adaptive research—the CGIAR can have large-scale, immediate poverty impacts in a manner that the CGIAR donors have been increasingly demanding of it (a call to which the CGIAR Centers have been responding). It calls not only for strengthening national agricultural research systems (and in the case of small national agricultural research systems, both regional and national research systems), but for seamless partnerships with developing countries with regard to their national policies, institutions and delivery systems. This is also illustrated by the disappointing spread of New Rice for Africa rice noted in the report.⁶

CGIAR's relationship to national agricultural research systems and advanced countries'

institutions. Both the Independent Review and Change Management are inward looking. Neither explores what would be required strategically and structurally for the CGIAR system, and of the donors who fund the CGIAR, to mobilize cutting edge science on the one hand, and to increase the scientific relevance to the clients on the ground on the other.

The Independent Review's finding that the national agricultural research systems find the CGIAR centers competing for resources, rather than complementing their activities, is a long standing tension, and it is problematic.

So is the Independent Review's finding, in the context of the Challenge Programs, that few advanced-country research institutions have found the challenge programs so fair in competitiveness as to want to invest their own resources to compete. The Independent Review does not delve into how Challenge Programs have evolved. They have not been credible enough in terms of the openness of their competition, and some in the size of their resources, for either the advanced research institutes or the more advanced national agricultural research systems to compete as leaders.

Yet the genuine opening to both national agricultural research systems and advanced research institutes can be achieved successfully where there is demonstrated political will to reform the system and full preparedness in the design of competition to achieve it. Brazil's EMBRAPA showed this, an effort which the World Bank supported through a loan of \$50 million to the PRODETAB program. That program was in turn derived from the GREAN Initiative which had gathered considerable momentum in the mid 1990s but was never implemented beyond Brazil for lack of funding.⁷ And the original intention of the Challenge Programs was similar.

McNamara's Bank achieved this same effect of larger impacts brilliantly, albeit in a different way, in Asia in the 1970s. The Bank had not only designed a clever CGIAR, on which I say more later, but made massive complementary investments in Asian countries in support of agricultural development strategies

technology, and delivery systems that would help national agricultural research systems to adapt and spread the new technologies on the ground.⁸

Absence of such a vision for the CGIAR—national agricultural research systems—advanced research institutes partnership may turn out to be a particularly important missed opportunity in the context of the redesign of the CGIAR, given that donors and the World Bank are once again focusing on food and agriculture—although their current focus is on short term price stabilization and increasing access of the poor to food, a consequence of the neglect of agriculture in developing countries over two decades.

To summarize:

- To achieve larger impacts CGIAR needs to add value by complementing, rather than competing investments—over and above what donors, national agricultural research systems, and other new suppliers of technologies and services already do, can do, or should do at the country level.
- The CGIAR not only needs to be a better global player in the arena of agricultural policy, as the report suggests, but as its sponsor and lender to development countries. The Bank and other donors need to make complementary long-term investments. The implications of these facts for the CGIAR's own reform process or the Bank's and donors' complementary activity in developing countries are not explored either in the Independent Review or in the Change Management process. The result is that the CGIAR is expected to perform an impossible task by its donors—namely, to deliver large-scale poverty impacts quickly.

I discuss below the performance-based criteria for resource allocation in the CGIAR, rather than the one based on the dual criteria of the potential for scientific breakthroughs (and/or application of known science) and for poverty impacts.

CGIAR, foundations, and the private sector. Also from such a broader perspective, how should the CGIAR relate to Gates and other foundations at the System level? The Independent Review documents well the substantially increased role of the Gates Foundation in the CGIAR funding through the two best Challenge Programs. But it does not explore its implications for mobilizing science using foundations. Gates is doing this ably in the health sector by funding global vaccine programs. It is dealing with the issues of intellectual property and licensing. It is also investing in universities. Foundation Research, and its application through the use of the private sector more generally for the CGIAR reforms, are profound—including for a legal persona. The proposed funding of the Gates Foundation in agriculture is already far larger than in the CGIAR, and the issue of CGIAR reforms needs to be considered in that context.

The Strong Review, the OED meta-review, the CGIAR itself, and its donor supporters have often flagged these two challenges—but they acknowledge that they have failed to come to grips with them. Even the report by the former Director and Chair of the CGIAR of the reform efforts in the 2001–07 period, which, unlike the Independent Review, is generally laudable of what has been achieved, acknowledges failure to mobilize new science—one of the major stated objectives of converting the Technical Advisory Committee into the Science Council at the time. By the same token, the Independent Review gives insufficient recognition to the evaluation work carried out by the Science Council including of the many centers, thematic and inter-Center programs. I return to the organizational issues of the CGIAR later.

Findings which resonate with the OED meta-review. Some of the findings of the report resonate fully with those of the meta-review, the Strong Review, and indeed even the findings of the Change Management working groups. These include the CGIAR's uniqueness as an instrument, its high rates of returns (particularly to the CGIAR's germ plasm and

biological control research), its well established contribution to poverty reduction (mainly in the areas of germplasm and biological control), its greater successes in Asia than Africa (even in the rained areas growing similar crops)—and yet, the increased role of restricted funds, stagnation of funds in real terms, declining allocation of resources to germplasm improvement research, a highly complex management structure, rigidities and slowness of decision making.

The review also confirms the warning of the OED meta-review that the fourfold Change Design and Management Team reforms—of the Executive Council and a System Office, transforming the Technical Advisory Committee into a Science Council, and Challenge Programs as a programmatic approach—did not go far enough, and the reforms were unrealistic in assuming they could transform the system as a whole in a short period using Challenge Programs as an instrument.⁹ With Challenge Programs—such as on water, rushed through using massive donor fund commitments rather than by the science quality—the outcome was predictable, and the incentives to centers were clear. All Centers flocked to Challenge Programs, further spreading the system thin rather than leading to the wholesale elimination of some of the research programs—or indeed even of the Centers, as the reform process had hoped.

The Independent Review's findings, but not its recommendations, confirm the earlier assessment of the meta-review, that there is need for systemwide allocation of resources by an able and qualified Science Council, based on system-level priorities. These need to be determined by scientific possibilities, science quality, and potential for impact on poverty reduction. The actual impact of the CGIAR technology must, however, come by strengthening systems in developing countries through complementary investments by governments and donors alike, and not by downstream development activities of Centers. The latter is a manifestation of the failure of both governments and donors to invest in research and service delivery in developing

countries. In this regard I found the Independent Review perhaps too influenced by the Center perspectives. I also found it difficult to understand some of the criticism of the Science Council. To the extent that the donors fund numerous small projects and demand independent evaluations of their programs, and the CGIAR secretariat does its own financial monitoring, this has resulted in triplication of work.

The fundamental problem is restricted funding by donors to Centers for activities of their joint choice, without regard to their international public-goods character. The World Bank underwriting the overhead costs of the Centers compounded the problem of Centers by giving them the attributes of consulting firms. It compounded the problems of overhead cost collection once the Bank's role as a donor of last resort to produce international public goods broke down.

It is true that the Bank's funding has become more restricted to Challenge Programs. Some Challenge Programs are producing international public goods, and perhaps the Bank has not supported the right Challenge Programs. The timebound nature of Challenge Programs has always puzzled me. The two best ones have depended on the work of the CGIAR Centers for well over a decade in those activities! It is also clear that the Challenge Programs have doubled the work of the Centers by engaging in and providing lead to Challenge Programs. This is in part because they know the rules of the CGIAR better than outsiders, as the Independent Review state—but also because the Challenge Programs failed to open up the system for true competition, in a way the GREAN Initiative had proposed and EMBRAPA instituted for PRODETAB achieved.

In short governance, management and finance are intrinsically related to how science is conducted in the CGIAR. Simply addressing governance, and creating a fund, desirable as it is, will not address the problem for reasons discussed below.

The report documents well the lack of clarity, overlap and gaps in the roles,

responsibilities and accountabilities of the key units of the system—namely, the Secretariat, the Science Council, the Systems Office, and the Centers (Chairs, Directors and Managers). While these tensions are inevitable in a CGIAR as an entity, and indeed have existed for a long time, the report's findings suggest that they may have worsened in the post-2001 reform period, in part due to excessive centralization of functions in the office of the CGIAR Director as the Chief Executive Officer. In that sense the 2001 reforms changed the character of the CGIAR fundamentally by shifting power from the Chair of the Technical Advisory Committee/Science Council to the CGIAR Secretariat. From the report these tensions seem to have led to the Science Council subsequently to (re?)asserting its independence from the System Office, the relationship of which the CGIAR Secretariat was ambiguous from the outset. The reforms of the 2002 also led the centers to (re?) asserting their independence from the Secretariat and the Science Council.¹⁰ The CGIAR Director perhaps no longer acts as the Chief Executive Officer of the System as a whole, although some post 2001 CGIAR publications suggest that that is his role. As a result, the report indicates that there is diffusion of tensions in the last year. However, it does not indicate that they have occurred to a point where there is mutual trust and a collaborative ambiance which once existed in the CGAIR system. So how much of the dysfunction is the result of structure as distinct from functions and personalities? And should structure precede functional clarity?

Looking ahead

While the Independent Evaluation report suggests that the central Change Design and Management Team strategy for the conduct of science, and to transform the CGIAR system from a center based to a program-based system, is not working well, the good news is that Centers are collaborating more with each other. What, then, does this mean for proceeding with expanding the Challenge Programs as the strategy—and should the

Challenge Programs simply be turned back to the Centers to lead because they do a good job under the current rules of the game for the Challenge Programs, as the report suggests? Should one declare defeat in the transformation of the system beyond what the centers are willing to agree to, in terms of bringing new science and actors to the table, as distinct from the reality of what the changed external environment calls for?

One of the reason new actors are needed is that the cost of investing in the capital equipment to conduct modern science in the CGIAR compounds is too high, and the CGIAR does not have the resources—nor, seemingly, the political will among its traditional official development assistance donors—to invest in a situation of declining resources and increasing costs of modern research in a highly dynamic biological and informational science. Yet there is also a considerable underutilization of the physical capital invested in biological and physical research, e.g., in US universities, and a hunger for collaborations in the context of globalization which is better achieved under an international umbrella.

The way forward

Both the External Report and the Change Management process are attempting to come to grips with these general findings, but they are doing so in very different ways. Whereas there may well be a great deal of consensus on the findings, there remains little agreement on how to address them. This is best illustrated by the report “Revolutionizing the Evolution of the CGIAR” by the former Director and Chair of the CGIAR. Their diagnosis of the CGIAR performance and what needs to change, their conclusions, and their recommendations focus on improving Center governance, questioning the Center alliance, reducing perhaps the number of Centers, disbanding the Science Council and replacing it with ad hoc panels, and a strong (CGIAR or Science Council?) Secretariat. These are radically different recommendations from those of the Independent Evaluation. It is unclear

at this stage if they are more in sync with the Change Management proposals.

Role of the current and future Science Council

The Independent Review does not make a sharp distinction between the roles of the Center-level and system-level evaluations and those of self- and independent evaluations. There is much room for improving the quality of both in the CGIAR, e.g., by including particularly the greater use of controlled experiment methodology in evaluations, and by the use of counterfactual and alternative sources of supply analysis in evaluating the work of the Centers (i.e., the costs and benefits when the CGIAR center is engaged in an activity similar to the ones being conducted by national agricultural research systems and even some nongovernmental organizations). Yet improving the quality of Center-level evaluations can be achieved with quite different reforms of the system's evaluation function than the ones suggested in the panel report of separating the evaluation function completely.

Separating the evaluation function is more necessary for the system-level evaluations than the Center-level evaluations of Center management and Centers' scientific programs. There is no reason why some of this work can not be outsourced without violating the principle of independence of evaluators. This is where linking evaluation to strategy is critical.

To give an example, the report sites that stakeholders interviewed consider Natural Resource Management and policy research to have had much less impact than germplasm research. The two examples of the IFPRI policy research with considerable impact cited in the report are the evaluation of the Progressa program in Mexico and of the school program in Bangladesh. Even though IFPRI work in both these cases is of high quality and has had impact, there are plenty of others who conduct such evaluations of school feeding programs (including MIT). Indeed, an impact evaluation industry has recently emerged in US universities

and think tanks for delivery of health and education programs.

What the independent evaluation does not point out is that there is dearth of work currently on critical agricultural policy issues crying out for guidance: e.g., the fiscal, productivity, poverty and environmental impacts of input pricing and subsidies and implications for productivity growth involving the poor and natural resource conservation, of price stabilization programs on food security of the poor, the reality and the scope for public-private partnerships in the delivery of agricultural services, to name only a few such topics. And there are few alternative sources of supply in these areas. In the absence of hard analysis, donor policy recommendations have been driven by ideology and expediency. Government intervention in developing countries, even in the face of massive public support of OECD agriculture and little prospects for agricultural policy reforms in developed countries, has remained controversial in the donor community, with little help to advance agriculture in developing countries—dual standards if there ever were any.

Promoting cash transfers, on the other hand, has now become hip. When donor funds are tied to what research CGIAR centers can do, there is little scope for the CGIAR to play up to its true comparative advantage in essential areas of policy and institutional choices for all Member countries, areas in which few others are likely to venture. That was the reason why IFPRI was brought into the CGIAR system when another such food crisis erupted in the 1970s.

In reviewing and commenting on the external evaluation, therefore, one cannot help but note that two concurrent exercises are currently underway. The latter also involves 60 to 65 people, with concurrent consultations with a similar number of CGIAR's 200 to 300 stakeholders as held by this review (donor and developing country Members, Center directors and managers, Science Council and Executive Council members, among others). This experience is similar to when the OED's meta-review was being conducted in 2002 and

2003, when also a reform program based on the recommendations of the Change Design and Management Team was underway. It proposed a more gradualist approach to reforms. Besides, there is history of lack of ownership of the recommendations of external reviews in the CGIAR, well represented in the commentary on the Strong Report by the former director and the chairman of the CGIAR, one which the meta-review had also encountered. This leads me to conclude that it would be impossible to reform the CGIAR without the key actors—particularly the World Bank, EU, and US—buying into the reform process, particularly in mobilizing completely unrestricted funds for the CGIAR, much like in the case of the Global Fund to fight AIDS, Tuberculosis and Malaria or the International Development Association. However, this needs to be done without the Independent Review’s analogy of resource allocation procedures carried out by either the Global Fund or the International Development Association being applied to the CGIAR, for the reasons discussed below.

Recommendations

The Independent Review recommends that governance be reformed first, a firewall between financing and management be established, the Centers’ alliance should have a legal status—and be given the role in the development and management of programmatic approaches with advice from a scientific advisory body—and the new governance team should address all other issues, including of all allocations with support from another set of advisors/experts.

OED/IEG’s reviews of global programs, which are by now substantial in number and are on the IEG’s external website, together with evidence above, shows that governance, finance, and management of global programs interact in a complex way, and they need to be tackled simultaneously. I do not agree with the Independent Review conclusion that the form needs to precede function. Function—in this case, an agreement among donors on the conduct of best science to address problems of

poverty in a sustainable way complemented by long term investments in agricultural research and development in developing countries—needs to precede form.

This is particularly essential now in the case of the CGIAR. Like the external panel, I too place a high premium on getting an agreement among key donors on unrestricted funding to the system as a whole and in larger amounts as an integral part of the reform. And yet the Change Management reform proposals seemed to be built upon a (realistic) assessment that increased unrestricted funding as provided currently is unrealistic. This situation can change only if there is a complete make over of the CGIAR funding. CGIAR funding has evolved as trickles of restricted funding in support of small projects contributed to by innumerable actors in donor agencies in negotiations with individual centers, in sharp contrast to the GEF, the Global Fund to fight AIDS, Tuberculosis and Malaria, or the International Development Association (which itself is losing its unrestricted nature). The lack of unrestricted funding in larger amounts, as envisaged by the Change Management process, in my view will fundamentally constrain the real reforms which the CGIAR system needs urgently. The Change Management proposals are influenced by this reality, perhaps apart from the reluctance of those scores of donor and center staff involved in the system to relinquish their own control of the system.

This logjam on funding can only be broken at the highest level by the World Bank President. And it can only be achieved by the CGIAR chair working closely with the World Bank President to mobilize his key counterparts in the US and EU, the two other key actors essential for this reform process to achieve real reforms. UN agencies and developing countries can provide the much needed legitimacy to this process in a way that the Bank’s Global Food Facility is being blessed and legitimized. But they cannot change the current state of affairs. The OED meta-review had made such a proposal.

In my interviews of Robert McNamara during the OED meta-evaluation, he had

indicated that when the CGIAR was formed, he faced the challenge of replicating the Rockefeller model: letting outstanding scientists with understanding, both of science and development, be put in charge of resource allocation for the CGIAR. Sir John Crawford, a savvy agricultural economist with confidence of donors and knowledge of Indian agriculture, and a close advisor to McNamara on India, was the first Technical Advisory Committee chair. McNamara said he was afraid, that without such a Technical Advisory Committee chair, the system will be run by bureaucrats in the World Bank and USAID. They would not know how best to allocate resources to achieve results in making science work for development. I believe strongly he was right. He had the vision and the shrewd instinct about how bureaucracies work. I do not know if this can happen again. The Change Management Proposals reflect the reality that this large and long-term strategic vision may not be realizable at this time.

At the same time I do not think the allocating principles of the Global Fund to fight AIDS, Tuberculosis and Malaria or the International Development Association, which are quite different, are applicable to the CGIAR by any means. The Global Fund is based on competitive proposals with competition being open to all developing Member countries, in a way that has not happened in the CGIAR, and the Independent Review does not propose this. Besides, with preponderant resources going to Africa, where the need is great but the capacity to use resources effectively is small, the impacts are likely to be less—the Global Fund has yet to be held accountable for results. International Development Association allocations are based on demonstrated policy and institutional reforms by countries. Most still sing the mantra of the free market, not a helpful criterion for the allocation of CGIAR funds to centers by any stretch of imagination. Besides, Centers have demonstrated their own weaknesses—namely, to pursue funding as a way of remaining in business, rather than always pursuing their noble mission. Finally, the CGIAR was created as a

global institution. The International Development Association and the Global Fund are exclusively country-oriented grant programs. If it wishes, the CGIAR can mobilize expertise from China, Brazil, and India to help Africa in a way the CGIAR Mexican and Japanese varieties of maize, wheat and rice helped Asia before. That is something the International Development Association and the Global Fund were not conceived to do. The Rockefeller/Ford-funded Centers that led to the birth of the CGIAR had that grand vision.

The task of change management should be assigned to a small group of thoughtful knowledgeable people who know and understand the CGIAR system, have the confidence of donors, and have an understanding of the developmental process to explore all options for an overhaul of the system. It can not be incremental and succeed.

Notes

1. These comments are made in my personal capacity. They benefit from my experience in being engaged in the issues of the emerging global aid architecture for food, agriculture, health and environment and from my involvement in and evaluation of global programs and partnerships. More information on these evaluations can be found at www.umalele.org
2. TOR sent to the reviewers.
3. World Bank, Independent Evaluation Group, Source Book for Evaluating Global and Regional Programs: Indicative Principles and Standards, 2007.
4. Women were always marginal in management positions in the CGIAR. That void has been made up to some extent at the top with the Chair of the CGIAR and the Science Advisor in the World Bank being women. As a development economist borne and raised in a developing country, I tend to be more concerned about the CGIAR being staffed by qualified individuals than with the gender balance given how unequal that balance remains throughout the world in all endeavors. The report shows that with growing uncertainty about unrestricted resources to recruit and retain top quality scientists, whether men or women, and whether from developed or developing countries, this remains a matter of considerable concern in the CGIAR system.
5. In the case of Alternatives to Slash and Burn, which I recently reviewed in the context of the second evaluation of the World Bank's 2002 Forest Strategy and Forest Related Global Programs, the implications relate to land tenure, community management, global markets for tropical timber, agriculture and energy, forest concession policies to name only a few. In the case of the Rice-Wheat System Initiative in which I was involved at the beginning when it was being set up, an important concern was the crop rotation of rice and wheat leading

to decline in productivity of both, related in part to the government's pricing and subsidy policies towards both crops and inputs, and a lack of other attractive options for planting. Any payment for environmental services in the face of a distorted price regime, which, in any case, have not advanced much in India, would certainly call for measurement of environmental benefits.

6. The World Bank for example has consistently questioned the economics of rice production in Africa and frequently there is no research or extension system to speak of in the countries. There is no way that NERICA's adoption can be expanded without such a link to national systems
7. A joint effort by US Universities, CGIAR centers and developing country scientists, co-chaired by Cornell University and University of Florida, The Global Research on the Environmental and Agricultural Nexus (GREAN), was endorsed by the then chairman of the CGIAR, Ismail Serageldin.
8. See Uma Lele, India's Food Crisis and the World Bank's Role in Fifty Years is enough.
9. "The Challenge Programs were being established without first addressing the issues of system level funding, priority setting, science quality and governance treated in the previous evaluations of the CGIAR. OED recommended that the CGIAR postpone the approval of new Challenge Programs (beyond the first two already approved) pending an assessment of System-level priorities, and a thorough review of the design and approval process of the first two programs to learn lessons for the selection, design, sequencing and phasing of future Challenge Programs in the context of System-level priorities and strategies.
10. The OED Meta review had noted that "the CGIAR is less focused on enhancing agricultural productivity than it used to be. Its current mix of activities reflects neither its comparative advantage nor its core competence. The six founding principles that were adopted when the CGIAR consisted of fewer centers and less diverse constituents are no longer suited to today's politically driven authorizing environment, wider research agenda and expanding membership", Précis of the CGIAR Meta Review, OED, 2004.

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Contents of the Technical Report

(on the attached CD-ROM)

Included with this document is a CD-ROM containing the Independent Review Panel's full Technical Report.

The Technical Report begins with an **Overview of Findings and Recommendations**. The body of the Technical Report is presented in 15 chapters that address the Review's Terms of Reference and cover four overarching topics as outlined in the Inception Report: the global context in which the CGIAR operates, governance of the CGIAR and its Centers, financing, and partnerships.

Chapters 2 and 3 discuss **challenges to global agriculture** and provide an assessment of the CGIAR's scientific achievements. **Chapter 4** describes the **multiple components of the CGIAR System** and their operation. It also discusses the character of the CGIAR "System" and the CGIAR's capacity for strategic planning. **Chapter 5** then provides an analysis of the **international architecture for agricultural research for poverty reduction**.

Chapter 6 evaluates the **work of the Science Council**, and **Chapter 7** assesses the **roles of the CGIAR's Members and cosponsors**. In **Chapter 8** the Panel reviews the **Challenge Programs** and the extent to which they have met the objectives set out in the 2001 Change Design and Management process. The chapter also discusses **Ecoregional and Other Systemwide Programs** and whether they and the Challenge Programs are effective mechanisms

to optimize CGIAR science and synergies among Centers and between Centers and partners. **Chapter 9** evaluates System- and Center-level **gender and diversity issues**.

Chapter 10 assesses the CGIAR's and Centers' **management of intellectual property**. This leads into **Chapter 11**, in which the Panel reviews the **CGIAR's and Centers' partnerships**, both internally and with outside organizations. In **Chapter 12** the Panel analyzes how the CGIAR conducts **evaluation and performance measurement** and describes how the CGIAR System can better incorporate **results-based management** into its operations to improve its relevance and efficacy, as well as its ability to articulate outcomes and impacts of its work.

Chapter 13 reviews the **Executive Council, the System Office, and the CGIAR's reform efforts over the past five years**. It then puts forth a **governance model** based on a re-balanced partnership between the Consultative Group and the Centers it supports. This is complemented by **Chapter 14**, which describes current and proposed **resource mobilization and allocation practices**. **Chapter 15** gives an in-depth analysis of **financing trends and financial management**.

Appendix 1 of the Technical Report is a detailed **summary** of the results of the **Independent Review Panel survey of informed stakeholders**.