

Report of the Sub-Saharan Africa Panel on Research Priorities for the CGIAR: An Electronic Stakeholder Consultation held April 14-May 5, 2003

Background

The Standing Committee on Priorities and Strategies of the interim Science Council launched a three-stage process of reflection on priorities for the CGIAR. The process included 1) a stakeholder consultation in two parts, 2) an expert consultation, and 3) a report by the interim Science Council. The stakeholder consultation would have two parts: a three-week electronic discussion by a panel and moderator chosen by the SCOPAS followed by an open discussion on the web and distribution of the findings of the panel to relevant email groups.

Over the three weeks of the consultation, the panel was asked to look successively at 1) emerging challenges and unattended issues to meet CGIAR goals; 2) emerging opportunities and threats to deal with these issues; and 3) priority issues and knowledge gaps that can be addressed via research.

The panel had active participation by 14 participants who made inputs to the discussion. They came from African research organizations, international research centers (CGIAR and associated centers), universities, private foundations, the private sector, and multilateral development organizations. Everyone had prior knowledge of the CGIAR system, including several people with senior management, Board, or program leadership in international research organizations. Almost all of the active participants were required to travel on mission at some point during the consultation yet managed to make substantive contributions on their return.

Outcome of Week 1

The Objectives of Week 1 were to identify: 1) the changes in poverty: its causes, nature and dynamics, 2) new constraints on productivity in agriculture, forests, and fisheries, and 3) the new threats to sustainability of agro-ecosystems and their natural resource context.

It was agreed that poverty reduction was the overarching goal. It was necessary to define it, to understand its correlates and causes, identify it in terms that could be measured and progress monitored, and derive research agendas. The following points were highlighted and participants in the open stakeholder consultation might like to comment on them:

With respect to poverty, the group noted:

1. “Income poverty”, based on household consumption and purchasing power parity does not capture the many dimensions of poverty.
2. The multidimensionality of poverty is highlighted in a number of policy documents:
 1. The Millennium Development Goals and Targets,

2. The World Development Report (2000/2001) that introduced other dimensions of poverty: political, economic, social, lack of transparency and lack of protective security, and
 3. The “livelihoods approach” which looks at five types of assets: social, cultural, natural resources, physical and economic and how these are affected by policies and trends.
3. There is a lack of understanding of the nature of poverty. This gap requires a mapping of poverty and its correlates and a new understanding of the production systems associated with poverty. Information of many types is required. Consultations on the need for systems to monitor the achievement of the Millennium Development Goals showed that few countries generated the necessary data as a matter of course.
 4. The impact of the HIV/AIDS pandemic is currently underestimated; unfortunately, there will soon be a growth in impact at the macroeconomic level due to the growth in numbers already known to be infected with the virus. The role of agriculture in food security and nutrition and in both prevention and mitigation of HIV/AIDs is not yet adequately understood.

With respect to “new constraints on productivity in agriculture, forestry and fisheries, it was noted that not all constraints are new in either their causes or impacts. The first step in improving the productivity and livelihoods of poor farmers is to secure the assets they already have. Members called attention to the following constraints:

1. Donor policies on trade and food aid that bias the use of natural resources
2. Market imperfections and poor marketing infrastructure
3. Lack of information of various types: technical, marketing, regulatory
4. Lack of understanding of key production systems and their constraints that research can address. The CGIAR may or may not be the best organization to address certain key constraints.
5. Lack of access to global innovation through IP protection, prohibitive cost of professional journals, and high transactions costs to access proprietary technologies that might be shared by their owners.
6. The need for strengthening NARS as generators and adaptors of technology.

With respect to sustainability of ecosystems and their natural resource context, the panel highlighted the following constraints:

1. Policy-induced degradation of the natural resource base which is already considered to be more fragile than in other parts of the world
2. Population-growth and its impact on land fragmentation, intensification of agriculture, and requirements for purchased inputs
3. Inability to address the year-to-year (or even inter-seasonal) variability of weather and increased frequency of extreme events even if long term climate change is not a pressing problem
4. Poor implementation of policies and laws to protect the environment due to lack of awareness or lack of incentives.

5. Lack of familiarity with/access to new research tools, algorithms, and models that can address not only new problems but better understand old problems and exploit existing sources of data.
6. Poor link between the research-generated knowledge and policy-making processes.

Finally, although it was not part of the formal terms of reference, panel members identified a number of constraints associated with policies and institutions:

1. Distortions due to trade and development assistance
2. National policy instability
3. An absence of a clear definition of the core functions of the State and respective roles of the public and private sectors
4. Lack of transfer of “best practices” (or even “good practices”) among countries with similar circumstances
5. Lack of perceived performance and relevance of public research to real problems which in turn exacerbates their funding problem that causes low performance
6. The lack of regulatory frameworks for managing intellectual property and biosafety.

It was noted that a fuller discussion of policies and institutions would be needed as the group began to address the comparative advantage of the CGIAR. This would include addressing the roles of institutions at the national, regional and global levels.

Outcome of Week 2

The task of Week 2 was to look at the gaps and opportunities for achieving a reduction in poverty and hunger through 1) new science (ICT, modeling), 2) new products, markets and institutions (WTO, new standards), 3) new partnerships (universities, regional cooperation) and 4) changes in the political economy (decentralization, donor trends). The objective was to see the role and comparative advantage of the CGIAR in addressing them.

With respect to the goal of poverty reduction, the theme of the application of new tools to know and address poverty was elaborated further. Throughout the week, it was repeated that research agendas must be context specific. The following points were highlighted

1. The collection and analysis of better data to measure poverty in its multiple dimensions and causes was not a CGIAR task alone but centers have to play a part in designing instruments and tools of analysis. The Centers are using GIS data and, through partnerships are building capacity in NARS
2. The classification of the poor and the correlates of their poverty can be important in identifying the key constraints to improvement in their well-being: knowledge, infrastructure, markets, security and the like.

3. Empowerment of farmers and communities was asserted to be not only an efficient approach to research but also an objective in its own right. Farmers must have the capacity to adjust to the various changes that are affecting them. This involves participatory methodologies that build on the culture, gender relations, and social structures of the communities with which Centers are working. The Centers have been partners and leaders in the introduction of such approaches.

A number of institutional challenges and opportunities were identified. Some were due to institutional structures, others to resources and access to knowledge:

1. Research structures isolated scientists in “silos, pockets and tunnels”. Through their networks, the CGIAR centers offer cross-discipline and cross-country collaboration that organizes flows of information and resources. The emergence of sub-regional organizations to facilitate regional research agendas, promote coordination, and achieve economies of scale and scope is producing new forms of partnership among knowledge generating institutions.
2. Problems of standards, seed policy harmonization, IP, and regulation of the use of GMOs are areas where regional organizations and the CGIAR can work together.
3. The absence of reliable and rapid diagnostic labs is a problem that has a potential private sector solution but may be an area for public-private sector collaboration.

The panel made several suggestions relating to particular gaps and opportunities for the CGIAR in very specific cases:

1. Biotechnology. There was currently no genome sequencing being done on a specifically African crop. Panelists saw this as an area where the CGIAR could take a lead and tie it to the role that African crops can play in integrated natural resources management. The lack of understanding and information on the safe introduction of transgenics is something that the CGIAR could help overcome, particularly through approaches, which make African scientists full partners in the research. Scientists and African policymakers need to feel knowledgeable and empowered.
2. GIS and poverty mapping. The generation of new information and exploitation of existing datasets that cut across national boundaries are research-related activities that are international or regional public goods. Their use by national scientists in priority setting and research planning can improve development and targeting of varieties.
3. New partnerships are most apparent in the growing role of sub-regional organizations in planning and promoting regional networks and programs to donor organizations. The conditions for successful partnerships of common goals, shared sovereignty, mutual respect, and shared resources were noted. These new arrangements at the regional level may not only enhance

collaboration among NARIs and the IARCs but may help NARIs open up to national partners in the Universities and NGOs.

4. Donor opportunities. Given the high degree of dependence on donor funding in many NARS, it was expected that a number of gaps and opportunities were mentioned without necessarily seeing a role for the CGIAR. Among the opportunities were the rediscovery of agriculture and rural development by donors, the direct support to sub-regional organizations for collaborative programs, the proposal of new mechanisms such as the Multi-Country Agricultural Productivity Program to increase empowerment, and a trend towards decentralization of agricultural services.

Panel members, also noted a number of problems with donor support. Among the issues were: 1) tying of support to particular donor-country partners, 2) involvement of only the leading countries in a region in a program, 3) non-sustainability of funding, 4) increased transactions costs and new layers of administration for obtaining funding, 5) donor preoccupation with short-term performance monitoring systems that are not developed collaboratively with developing countries to serve their needs. None of the above “complaints”, however, absolve research leaders from the need to be accountable to their investors and relevant to the needs of their stakeholders.

5. New developments in science. In addition to the specific technologies discussed above, panelists made three generic points about the gaps and opportunities offered to developing countries by new science:
 - a. The pace of change is so rapid that whole segments of the world are in danger of being permanently left behind. Enhanced partnership is one way to make sure that the divide (digital or genomic) does not become worse.
 - b. At the applied research level, new approaches to participatory research are not yet mainstreamed and the CGIAR has been a leader in helping NARS adopt new approaches. The opportunity is there without requiring the CGIAR centers to duplicate adaptive research that NARS should do.
 - c. The recurrent costs of new science, introduced by donors, are often underestimated and often not provided for in the future.
6. Information and Communications. The discussion did not limit itself to information and communication technology at the high end of the scale, but noted rather that much needs to be done on the sharing of information using traditional or decidedly low-tech communication methods. Information on new crops needs to be accessible to users, market information is being made available on rural radio, and the communication of information to policy makers is something that the CGIAR may be able to assist.

7. Integrated Natural Resources Management. The panel did not have a focused discussion of INRM and the specific problem of soil fertility that is emphasized in many fora. However, various comments were brought together as follows:
 - a. Poor policies create disincentives to invest in sustainability
 - b. We understand poorly the biophysical processes underlying our models
 - c. Developed countries, with access to cheap nitrogen, are not working on nitrogen fixing legumes whereas such research is valuable for Africa both to reduce costs and to gain other benefits such as control of pests
 - d. The integration of livestock and crops in an integrated nutrient management system is not adequately studied
 - e. Participatory approaches will help fill in some of the gaps in our knowledge. (Farmer field schools seem to indicate that unschooled farmers have no difficulty in assimilating and teaching others the scientific concepts underlying IPM techniques.

The above discussion of gaps and opportunities concluded Week 2 with a recognition that the panel had to develop in Week 3 a prioritized list of research themes for the region that could be converted into detailed activities at the subsequent technical consultation (which would follow after the “open” stakeholder consultation on the results of the panel’s findings).

Outcome of Week 3

The task for Week 3 was to come up with a prioritized list of research themes for Sub-Saharan Africa. It became apparent that the process of prioritization could not be done solely on the basis of the discussion up to this point.

Process

The panelists were asked, and agreed through their full participation, to an iterative process as follows:

1. Each panel member would submit a list of what he or she considered to be the five most important gaps and opportunities that the CGIAR should address along with comments on the choice.
2. The moderator would assemble an aggregate list of gaps and opportunities coming from the members and prepare a “ballot” with all the themes proposed. The idea was that the list would be enriched progressively over the week.
3. Panelists would then be asked to allocate a total of 20 points across the themes that were represented (with the opportunity to add a “write-in” issue not previously mentioned listed).

4. The moderator would report on the scoring and provide feedback on the results.
5. Panelists were invited to comment on whether the CGIAR system, with resource allocations resulting from the exercise reflected a shared vision of the system.

During discussions in Week 3, a number of guiding principles appeared to be common to everyone in the group. The common elements were:

1. The CGIAR seeks to achieve its goals through the production of international public goods. Most panelists accept that capacity building and institutional strengthening of subregional organizations and national research systems, which themselves produce public goods, falls within the definition of international public good.
2. Building human and institutional capacity in partners is an integral part of most CGIAR activities and not necessarily a standalone activity from research collaboration.
3. The CGIAR does not have a comparative advantage at the adaptive end of the research scale, but developing and introducing methodologies and information that improve adaptive research does fall within its comparative advantage.
4. Partnership is not only a desired mode of operation but also an efficient and effective mode of doing research.
5. Partnership, accompanied by capacity building leads to empowerment of African scientists and institutions.

Context and Trends

There were several comments on the context within which we are identifying gaps and opportunities for the CGIAR.

1. Donors are showing a renewed interest in agriculture as an engine of growth in Africa. Support is going to countries demonstrating good governance.
2. Monitoring and evaluation are increasingly important to ensure continued flows of funding. Indicators may be built around the Millennium Development Goals.
3. The role of the private sector and linking farmers to input and output markets are critical factors for success. Markets and post-harvest transformation were frequently cited as gaps and opportunities for the CGIAR.
4. New science and technology will require appropriate regulations and institutions to ensure its social and environmental acceptability. These include institutions to deal with IPR, biosafety, and international standards.
5. The CGIAR must form partnerships with advanced research institutes to keep up with the cutting edge of new technologies but may continue to be a bridge between ARIs and the development of applications in developing countries.
6. At the regional and subregional levels, African-led (but still donor-funded) organizations offer the prospect of improved coordination of research and

demand-led activities. The research programs of the CGIAR and these organizations need to be better coordinated.

7. There are many knowledge gaps at both the component and system levels that the CGIAR institutes must address in order to understand why its technologies may not be as successful as expected.
8. Livestock is an integral part of most farming systems in Africa and an essential element of future intensification.
9. Information gaps are noted in all areas: location and causes of poverty, biodiversity, markets, genomics, regulatory environments, characterization of production systems, and location of pests and diseases. Many information needs are best addressed at the regional level rather than the national level. Keeping up with the possibilities offered by new ICT is a challenge.

The discussion added a number of ideas related to opportunities for the CGIAR that should be recorded for participants in the open consultation.

1. High value crops for export and the domestic market constitute a pathway out of poverty. The private sector is the agent of transmission of these technologies to small farmers but there is a role for national and international research.
2. Post harvest activities will take on increasing importance
3. The CGIAR has a role in sustaining biodiversity and can help NARS meet their commitments to international conventions like the CBD.
4. Improving the nutritional status of foods through biofortification
5. There is a general need to understand better how systems work at the household and community levels so that component research can be prioritized.
6. There is a challenge in scaling up successful small-scale systems that are both sustainable and highly productive (e.g. small-scale water management approaches).
7. The CGIAR must go beyond its concern with production to include post harvest activities and value added along the commodity chain.
8. Empowerment of African farmers and communities was a priority for one member who posed the rhetorical question “Is this the job of research?” His response was that successful research requires a working “system” of institutions, market actors and agricultural supporters that is ready to take on and process the research results and support their adoption and utilization. Beyond this he sees awareness and consciousness-raising as a “sixth issue” that is part of strengthening and empowering African institutions.
9. The strengthening of African R&D institutions came up in many forms: 1) to facilitate adoption of research results, 2) as a component in empowerment and partnership, and 3) as part of a wider networking strategy to make research more effective.
10. The development of the sub-regional organizations is an encouraging step forward that may lead to economies of scale and scope.

Panel members then submitted their top five activities for inclusion in the ballot. The ballot grouped the suggested themes under the five CGIAR Output Categories of 1) Germplasm improvement, 2) Germplasm collection and conservation, 3) Sustainable production systems, 4) Improved policies, and 5) Enhanced NARS. A sixth category of “cross-cutting activities” attempted to identify development of “new tools that could be fit into various of the CGIAR categories.

The ballot is attached as Annex 1 along with average scores.

At an aggregate level, fourteen active panelists allocated their 20 points in a way that produced the following “desired” allocation of CGIAR resources in sub-Saharan Africa:

CGIAR Output Category	Share of Scores (%)
Germplasm Improvement	28
Germplasm Collection and Conservation	6
Sustainable Production Systems	30
Improving Policies	13
Enhanced NARS/Rural Institutions	14
Cross Cutting Tools (GIS, biotechnology, poverty mapping)	9
Total	100

The results of this scoring were reported back to panelists as an interim finding.

One panelist raised the important question of whether a multi-stakeholder polling (the average of scores) could lead to strategic priorities for the CGIAR or whether it masked wide divergences among different clusters of stakeholders. A few panelists observed that the themes identifying the development of “cross-cutting tools” could be subsumed under the CGIAR output categories to which they contributed.

This question was referred back to members with a query: “Is a CGIAR system [in Africa] with roughly one-third of its resources in germplasm improvement and conservation, one-third in sustainable systems and natural resources management, and one-third divided equally between policies and rural institutions a shared view of what the system should be or one that hides quite divergent views about where it should go?”

The moderator reviewed the distribution of scores by individual panel members and made a number of observations:

- ?? Panel members did demonstrate divergences in the emphasis they put on commodity versus systems research. However, they were consistent in recognizing the importance of new science and technology to support that emphasis.
- ?? Members emphasizing the importance of germplasm enhancement gave due recognition to both conventional means and biotechnology. Those that called for specific attention to African crops coupled this with recognition of the important role of biotechnology and genome sequencing. They also noted the role of African crops in sustainable systems.
- ?? Members that highlighted the importance of integrated natural resource management themes gave recognition to the need for new information and modeling techniques and the training of partners in their use.
- ?? The need to address the issue of development of input and output markets and the lack of effective seed systems was highlighted by several members coming at it from different directions. For one cluster, it was necessary to develop domestic and international markets to handle the output resulting from enhanced productivity. Another view saw efficient markets as empowering farmers and poor communities. The seed industry was particularly important to the widespread dissemination of enhanced germplasm.
- ?? Enhancing institutions was seen as both capacity building in scientists and managers and in the creation of new partnerships among Universities and NARIs, among NARIs at the sub-regional level, and among IARCs, ARIs and NARS institutions broadly defined.

One of the advantages of a scoring approach is that it can be used iteratively. A few members have sent additional comments in response to the question whether a CGIAR system with the allocation of resources suggested by the scoring represented the direction the system should be going.

Post-consultation comments received from panel members suggest that an “open” consultation may not lead to the strategic incisiveness that the CGIAR needs. The following comments need to be left on the table for the “open” consultation:

1. The average scores mask divergent views. A much higher allocation than one-third must continue to go to germplasm improvement and conservation. The current allocation is higher than this. The CGIAR needs to renew its commitment to developing new crop varieties in Africa that respond to farmers’ needs. More attention needs to be paid to the major bottleneck of germplasm multiplication and dissemination. Crops to diversity income sources and crops that enhance nutrition in Africa are required.
2. IARCs (and not just CGIAR centers) will need to live up to their mandate and, despite the need to show results on the ground, move up the ladder and concentrate on more strategic and basic research). The IARCs need to promote research in universities through active participation. The Universities are the place for strategic

and original research, not the NARS. The IARCs can help link NARS and the Universities.

3. The priority for international research will be on building the quality of science, strengthening strategic alliances, focusing on the poor, enhancing financial viability and attaining organizational renewal. The allocation of resources needs to be driven by end-users and markets and not prescribed by percentage allocations.
4. Africa must have the capacity to do its own policy analysis.
5. The CGIAR needs a radical restructuring, with a shift very much upstream, a smaller number of centers working under SROs strategic frameworks, with a major focus on building institutional capacities of strong NARS within sub-regional frameworks, and probably setting a timetable (say 15 years) for going out of business and morphing into African-led and managed centers of excellence that will continue to receive support from the international community.

In Annex 1, the reader can see the priority according to the CGIAR output categories and the individual themes that were scored. The post-survey comments coming primarily researchers and donors to research have emphasized the need for a strategic move upstream and enhanced partnerships with strengthened African institutions.

I take this opportunity to thank all the members of the panel for their serious and active participation and for their enthusiasm in continuing the discussion in a post-scoring round of commentary that will certainly be useful to the participants in the “open” consultation.

Howard Elliott
Moderator

Annex 1: Prioritization of Activities Leading to CGIAR Outputs

Gaps and Opportunities for the CGIAR: Prioritizing Areas of Work

In order to bring the discussion into some format that relates to the current situation of the CGIAR and where it might go, I will try to represent the ideas members have put forward using the CGIAR Outputs as an organizing framework.

1. Assume you have the opportunity to allocate the budget of the CGIAR. You have 20 points to allocate (in any desired proportion) to no more than five activities.
2. Please allocate all 20 points as if you were solely responsible for designing a relevant and sustainable system.
3. Please comment in a paragraph on how your allocation would promote the goals and seven planks of the CGIAR.

Germplasm Improvement

Share of Votes to Category: 28%

- | | | |
|---|-------|-----|
| 1. Enhancing germplasm through conventional approaches. | _____ | .06 |
| 2. Enhancing germplasm through biotechnology | _____ | .03 |
| 3. Characterization of genetic traits in African plants and animals | _____ | .05 |
| 4. Stress resistance in food staples | _____ | .04 |
| 5. Nutritional content of food staples | _____ | .01 |
| 6. Study and enhancement of indigenous African crops | _____ | .07 |
| 7. Work on high value crops with export potential | _____ | .04 |

Germplasm Collection and Conservation, Saving Biodiversity Share of Votes to this Category 6%

- | | | |
|--|-------|-----|
| 1. Sustaining biodiversity | _____ | .01 |
| 2. Help partners live up to international obligations (e.g. CBD). | _____ | .00 |
| 3. Collect, conserve, evaluate, characterize, enhance, document, and distribute germplasm. | _____ | .05 |

Sustainable Production Systems

Share of Votes to this Category 30%

- | | | |
|---|-------|-----|
| 1. Defining production potential of the natural resource base under different systems | _____ | .02 |
| 2. Synthesis, storage, dissemination of NRM information at regional level | _____ | .01 |
| 3. Integrated Natural Resources Management: develop holistic understanding of household and community systems | _____ | .05 |
| 4. Effective pest management / Integrated Pest Management | _____ | .04 |
| 5. Integrated Crop and Livestock Systems: understanding the process of intensification and implications for cropping, livestock, and labor demands. | _____ | .06 |
| 6. Forage and feed crops as component of systems | _____ | .03 |
| 7. Integrated Nutrient Management Systems | _____ | .05 |
| 8. Small Scale Water management and Water Use Efficiency | _____ | .01 |
| 9. Systems for drought prone areas | _____ | .01 |
| 10. Understanding contribution of pastoralism to the rural economy | _____ | .01 |
| 11. Farm mechanization | _____ | .02 |

Improving Policies

Share of Votes to this Category 12%

1. Public and private sector issues _____ .01
2. Incentives and markets: input and output markets, seed systems _____ .06
3. Study opportunities for post-harvest value-added and processing _____ .05
4. Understanding farmers' acquisition and use of nutrients for sustainable systems _____ .00
5. Studies to improve the funding levels and allocation of research resources _____ .00

Strengthening NARS and other Rural Institutions

Share of votes to this Category 14%

1. Training of scientists and research managers _____ .04
2. Training materials on crops _____ .02
3. Research on empowerment of farmers and communities and development of tools to support empowerment (e.g. participatory approaches to planning, breeding, monitoring.) _____ .05
4. Build organization and management capacity of National Agricultural Research Organizations _____ .01
5. Research on innovation systems and innovation processes in agric ulture _____ .02
6. Building capacity of SROs (sub-regional organizations). _____ .01

Crosscutting Activities and Outputs

Share of Votes to this Category 9%

1. Identifying poverty: mapping location and correlates of the poor _____ .02
2. Development of new research tools (e.g., biotechnology, genomics, decision support tools, remote sensing) _____ .05
3. Development of new information tools (e.g., GIS, modeling of systems) _____ .02