

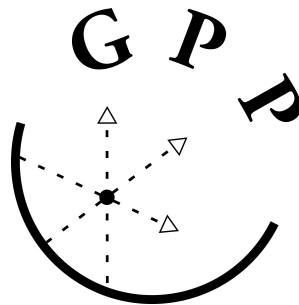
UN Vision Project on Global Public Policy Networks

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THE CONSULTATIVE GROUP FOR INTERNATIONAL AGRICULTURAL RESEARCH

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Case Study for the UN Vision Project on Global Public Policy Networks



I. INTRODUCTION

The Consultative Group on International Agricultural Research (CGIAR) is an informal association of almost sixty public and not-for-profit members dedicated to reducing poverty and hunger through scientific research. It was created in the years 1969-1971, in the midst of, and in response to, widespread concern that the world would not be able to produce enough food for its growing population. Up until the mid 1960s, efforts to adapt temperate zone agricultural technology to the tropics and sub-tropics had failed to achieve major increases in food production. But beginning in the second half of the decade, research institutions established by the Rockefeller and Ford Foundations in Mexico and the Philippines had distributed highly productive varieties of wheat and rice tailored to tropical conditions, which were doubling or better the yields achieved on some Asian and Latin American farms. What came to be called the Green Revolution had started. Throughout the development community there was a growing perception that applying modern science to the problems of agricultural production in developing countries could yield enormous and relatively early benefits. The wheat research originated in Mexico in 1943, and took 20 years to release its first successful varieties in that country. The International Rice Research Institute (IRRI), established in the Philippines in 1960 to do the same thing for rice, benefited from the experience with wheat research and some good luck in finding appropriate germplasm. IRRI produced its first high yielding rice on farmers fields in only six years.

Those who came together to establish the CGIAR wished to expand the application of scientific research to the production of other foods grown and consumed by the poor in developing countries, using replicas of the institutional models employed by the two foundations, thus significantly alleviating the food crisis. Donor agencies were persuaded by the World Bank, the Food and Agriculture Organization (FAO), and the United Nations Development Program (UNDP) to create in 1971 a unique international mechanism for this purpose. From an initial \$24 million spent on four research centers, the CGIAR's annual budget has now grown to \$340 million for 16 centers in 1999. Although spending only about 4% of the global outlay for agricultural research, the CGIAR has had major impact and influence. Apart from its direct effect on food production, the organization has served as an exemplar of what could be accomplished through the imaginative use of foreign assistance funds, though not an easy one to copy.

The founders of the CGIAR would have been surprised if they had known that it would one day be considered a global public policy network. They were conscious of innovating, but their eye was not on creating precedents for international cooperation. They were intent on finding a way to make a significant impact on the production of food in developing countries. The institutional devices they created were dominated by that common determination.

II. THE EVOLUTION OF THE CGIAR

1. Origin and purpose

To understand the origin of the CGIAR, it is necessary to remember a time when a combination of circumstances caused many people to think that the Malthusian prediction of population outgrowing food supply was about to come true. This opinion was widely held in the decade between 1965 and 1975. It was reinforced by rapid population growth and the intractability of food production levels in the developing world, spreading realization that resources did have limits, and serious drought, particularly in Asia, but also in Africa. Enthusiasm for helping the developing countries was quite strong, in comparison with the present day, but there was a growing concern that providing free or low cost food to meet humanitarian needs would delay action to end the danger.

In the midst of this period of foreboding there appeared out of the foundation-supported programs, high yielding varieties of wheat and rice that were rapidly adopted by the farmers in the suitable environments, primarily tropical and sub-tropical areas with irrigation or assured rainfall. The world came very quickly to two major conclusions: better agricultural technology could be achieved by applying first quality science to the production problems of the developing countries; and with proper institutional support and reasonable incentives, that technology could change the supply side of the food equation decisively. The sources of this new technology were two research institutions, IRRI, and the International Center for the Improvement of Maize and Wheat (CIMMYT), built on a new pattern devised by the Ford and Rockefeller Foundations. The foundations set to work to replicate their success by establishing two additional institutes to do research on the production systems of the humid tropics in Latin America and Africa. Recognizing that fully exploiting the opportunity would require more resources than they could muster by themselves, the foundations determined to sell the concept to the official aid agencies, and convened a meeting of the heads of some of those agencies at the Rockefeller conference center at Bellagio, Italy, in April 1969, for that purpose. During that meeting, Robert McNamara, who had become president of the World Bank in 1968, and as a Ford Foundation trustee was familiar with the work of the foundations, proposed the possibility of a consortium or consultative group to mobilize funding. He was strongly supported by John Hannah, Administrator of the US Agency for International Development (USAID). Soon afterwards, McNamara wrote to the heads of the FAO and the UNDP, securing their agreement to collaborate in exploring the possibilities. A little more

than two years later, or very quickly for enterprises involving a number of governments and international organizations, the CGIAR convened for the first time in May 1971 at the World Bank under the cosponsorship of the Bank, FAO and UNDP.

2. Policy formulation and negotiation

As a new form of organization, which involved bending many of the normal rules of behavior for aid agencies, the CGIAR had a number of problems to solve, both before and soon after its formal creation. One of the most challenging was how to provide substantial amounts of official resources to the centers while leaving them free to manage their programs on the basis of scientific priorities without bureaucratic or political interference. There was little support for creation of a foundation-like entity to receive and disburse contributions. The idea of a donor consortium, where the members would make binding pledges on the model of World Bank-led consortia of donors to India and Pakistan was also rejected as too formal. The form chosen was that of a consultative group, a more informal sort of arrangement employed by the Bank to coordinate donors supporting specific countries, which initially did not involve pledging. (By the time the CGIAR was created pledging was a feature of some country consultative groups. The CGIAR moved very quickly to a pattern in which donors stated their intentions for the coming year at Group meetings.) One key CGIAR decision was not to rely on pooled funding, but to allow each donor to deal directly with whatever centers it wished to support. The centers remained autonomous bodies; the donors decided how much support to give to which centers—a principle referred to in the Group as "donor sovereignty."

The CGIAR, as an informal structure with no legal personality, required a context in which to operate and a process for providing leadership and guidance. An important part of the context was provided by the existing four centers, whose operations exemplified the work to be supported. Much of the rest was provided by the cosponsoring international organizations, the FAO, UNDP and the World Bank. These multilateral agencies jointly provide international legitimacy to the CGIAR. They also house and finance the central structure of the Group. The first CGIAR chairman was a World Bank department director. All of the remainder have been Bank vice presidents, generally the most senior person dealing with interregional affairs. The secretariat for the CGIAR is a World Bank department. The secretariat for the Technical Advisory Committee is at the FAO.

The role of UNDP as a cosponsor was never particularly controversial, but the same was not true for either the World Bank and the FAO. The Bank was seen by the foundations in the Bellagio period as threatening to take over and dominate the new structure. The formula of a consultative group under Bank chairmanship was accepted only as other alternatives vanished. Ambivalence about the Bank, gratitude for its leadership and fear of its possible domination, has remained a constant throughout the life of the CGIAR.

The FAO, on the other hand, was feared as a potential transmitter of bureaucracy and politics, should it obtain too much influence. FAO was the international agency whose mandate clearly included agricultural research, and some in that agency seemed to believe it should play a dominant role in the CGIAR. At various times, particularly after the accession of Edouard Saouma to the director generalship in 1972, the FAO visibly chafed at being given what it considered to be insufficient weight in the overall structure of the Group. Ensuring a positive role for FAO in keeping with its international mandate, while not putting it in a controlling position, was a serious challenge for the CGIAR and its supporters within the FAO over a long period. This relationship has noticeably improved, however, in recent years.

In order to convince donor agencies that they could safely provide unrestricted support to centers sponsored by the CGIAR—not their usual habit—a system was needed to determine priorities and monitor performance. One of the first acts of the Group was therefore to create a Technical Advisory Committee, composed of twelve members (TAC's size has varied through the years) expert in various aspects of agricultural research. TAC members serve in their individual capacities, and are equally divided between developed and developing country nationalities. They are formally appointed by the Group after nomination by the cosponsors. As mentioned above, the TAC Secretariat is located at the FAO, which appoints the Executive Secretary. The first chairman of TAC was Sir John Crawford, an Australian civil servant, diplomat and educator who had served as a lead advisor to the World Bank on agricultural development in India.

In its first years, TAC had an enormous agenda, sorting through the many areas suggested for CGIAR sponsored research, and then considering concrete proposals for recommendation to the Group. More ideas were rejected, or fell by the wayside, than were accepted. A critical CGIAR decision made on TAC's recommendation, which took several years to make and followed some experimental initiatives with other approaches, was to sponsor research only through institutions fully supported by the CGIAR, not to offer partial

support to work by others. This gave a unity of content and responsibility to the research system. As time went by, it was also necessary to establish a system for independent review of center performance. This system, and the system for allocation of resources, are discussed in more detail below.

An early issue was the role of developing countries in the CGIAR, which initially consisted only of donors, none of which were third world governments. After considerable discussion, it was agreed that the five FAO regional conferences would each nominate two countries to share a single seat at the CGIAR table and represent developing country views on all issues discussed. This arrangement had serious flaws: attendance was fitful and the level of participation variable. The individuals given the responsibility did not have the resources to represent their regions effectively to the CGIAR, much less to represent the CGIAR to the government that selected them. Various fixes were attempted, but although some of the representatives made valuable contributions, the system never worked satisfactorily. It nevertheless continued in place until 1999 when it was allowed to lapse. The number of developing country donor members had grown sufficiently to make other representation unnecessary.

An important early obstacle to the success of the CGIAR was the perception of donors from outside North America that this was a US-dominated enterprise in which the Europeans, in particular, would have no influence. The reasons for this perception were clear: the roles of US foundations, of USAID, of citizens of the United States in the multilateral agencies and the centers, and of other Anglo-Saxons in the entire structure were very strong. With considerable effort, including a deliberately low profile assumed by USAID at meetings of the CGIAR, this perception was gradually overcome.

This section on the origination of the CGIAR would not be complete without noting a persistent characteristic of the Group and a major reason why it works, namely its informal atmosphere, jealously defended even in the very large meetings of the present day. Votes are almost never taken, decisions are arrived at by consensus after discussion, rules of procedure do not exist, the record of proceedings is considered informal, although it has grown more imposing over the years, and is not endorsed by the members. Representational speeches are sometimes made by the unadvised, but are generally ignored. Many factors have contributed to this atmosphere, starting with the carryover from the original sessions organized by the foundations at Bellagio, and certainly including the sense of accomplishment and challenge present from the beginning.

3. Actors and their roles

The actors in the CGIAR proper may be grouped into two broad levels: donor members, and centers. Specific figures and groups are covered in other sections of the paper, as are clients and collaborators, who are very important to the system, but are not strictly within it.

Donors: The donor members provide funding for the operations, specify through consensus the policies to be implemented, and participate in various standing and ad hoc bodies that keep the system going. The members also include both industrial and developing countries, foundations, international and regional organizations, and until recently, regional representatives. There were 17 members at the first meeting along with ten observers who later became members. As of the end of 1998, there were 58 members, 22 of which (providing 4% of the funding) are countries with developing and transitional economies, and 21 developed countries. (Table 1 provides a list of the members as of the end of 1998, together with the value of contributions for 1998, and over the life of the system for each.)

The members are by no means homogeneous. Among the members are the cosponsors: FAO, UNDP, the World Bank and relatively recently the United Nations Environment Program (UNEP). Besides providing a link to the formal international system, these multilateral agencies support the central structure of the Group, as indicated above, nominate people for key positions, and serve as a sort of informal advisory group to the Chairman.

The World Bank has three roles in the CGIAR: cosponsor, donor and client. (For an analysis from the Bank's viewpoint of its involvement in the CGIAR, see Anderson and Dalrymple 1999.) The Chairman of the CGIAR presides over meetings of the cosponsors

(See Table 1 in separate Excel file (Farrar.Table.xlt))

Where the Bank is represented—as it is in the CGIAR itself—by a senior agricultural specialist, who reports to the Chairman in his World Bank capacity. The Executive Secretary, a World Bank official who reports to the Chairman, organizes and keeps notes of cosponsor meetings.

Meeting its obligations as cosponsor to support the organizational structure of the CGIAR involves annual costs to the Bank amounting at present to just above \$5 million. (The other cosponsors pay smaller amounts.) The principal financial burden on the Bank of CGIAR participation, however, is being a major donor to the centers. It has ranked second to the United States over the entire life of the CGIAR, and is now first, above the United States, in annual support of the CGIAR research agenda. The Bank's pledged share of contributions has risen from the original 10% with a limit of \$3 million, to a present 15% with a limit of \$45 million. A small share of this total currently goes to the operation of CGIAR committees and related structures. In 1994 and 1995, as part of the plan to overcome the effect of a financial crisis in the CGIAR, the Bank made a one time contribution of \$20 million, which matched two for one by similar one time support from other donors. World Bank funding has always been fully unrestricted, making it particularly valuable to the centers.

The Bank has also played wide variety of financial roles. The most important was allocating its funds to enforce the priority judgments of the system. To mediate between the donors freedom of choice and the concept that the Group would set priorities on the advice of TAC, the Bank allocated its funds after donor intentions for the year were known, to redress disparities between approved center funding and the actual contributions of other donors. There were, of course, limitations on the Bank's ability to balance the situation fully, and it was able to call on other donors, particularly the USAID, to assist. This system operated until it began to be phased out in 1994, with consequences discussed below. For details of the system, see Anderson and Dalrymple, 1999: 23-28. Other roles played by the Bank involved helping centers with short term cash flow problems, serving as an intermediary for donor funds going to centers, for example when a donor needed to use a formal multilateral channel to meet internal regulations, and at one time operating a stabilization fund to compensate for the impact of exchange variations on donor contributions and center budgets. When it became clear that several centers outside of the system were likely to be adopted, the Bank provided—in some cases continued or increased—support to facilitate the transition using grant funds outside of the CGIAR contribution. David Hopper, then CGIAR Chairman, had ample reason to write in 1988: "Should the Bank withdraw support from the CGIAR, there is a clear potential of the collapse of the Consultative Group itself and, therefore, an end to the research work of the system." (Quoted in Anderson and Dalrymple, 1999: 22)

The Bank's financial role in the CGIAR System has been a subject of internal controversy over the years. Initially, there was concern about the propriety of the Bank making grants. Later there was, and is, competition from numerous other, but smaller, grant

programs in which the Bank plays an important role, and a concern about the implications for the overall demands on the budget. There has also been some demand for part of the Bank's contribution to be earmarked for activities perceived to be of special value for the Bank's overall program, rather than used to support research priorities as determined by the CGIAR itself, or to be reserved in part for supporting the direct participation of CGIAR centers in Bank development activities. As set forth by Anderson and Dalrymple, these issues are very active within the Bank.

The third role of the Bank, as a user of CGIAR center outputs and capabilities in its development programs takes us a bit away from the central theme of this case study, and is a complicated question. Interested readers can find an introduction to it in Anderson and Dalrymple 1999. The short version is that this relationship has not been nearly as fruitful as might have been expected. Some other donors, particularly USAID, have done considerably better.

The Bank's role in the CGIAR involves three actors with different functions: the Chairman, the Secretariat, and the Representative proper, who is usually the head of the central Bank department responsible for agriculture and rural development.

The position of chairman of an organization as amorphous as the CGIAR, is both crucial and challenging: the chairman must provide effective leadership without appearing to take authority which the members have not intended to give, be an effective spokesman for a wide range of articulate, committed and rarely unanimous constituents. He has an ultimate responsibility for fundraising in the broad sense and particularly in recruiting new donor members, otherwise supporting the more specific fund raising efforts of the center directors. He must also work effectively behind the scenes to resolve problems. The CGIAR has been very fortunate in its chairmen, of whom there have been seven, three from the South and four from the North. Their personalities have been very different, as have been the specific challenges they have faced. Most had to learn on the job. Among the challengers were establishing and then solidifying, the process of deliberation and decisionmaking which was at the same time informal and effective; avoiding discouragement when funds became tight and finding ways of adjusting priorities both to scarcity of resources and burgeoning demands; making a shift in focus to include the problems of the environment by expanding the range of centers supported to include several with a resource focus; and maintaining a priority for on increased production in spite of the new emphasis on management of natural resources.. The present incumbent, Ismail Serageldin, was called upon to lead the Group

through a serious financial crisis, which implied an institutional crisis as well. He has responded with high level of personal initiative, both organizational and intellectual, placing a stronger personal stamp on the organization than any of his predecessors.

Speaking on the basis of eight years of personal experience, and with no claim to objectivity, I would say that the Executive Secretary is doing his job best when he is almost, but not quite, invisible. He needs to spot problems over the horizon and, working with the chairman, get the ocean liner's rudder turning in good time. The Secretariat has a number of important formal functions as well, such as managing the actual meetings of the Group and its committees. It is responsible for oversight of the financial affairs of the Group as a whole, and shares with TAC responsibility for the review of center programs and budgets, and monitoring center performance. It needs to be on top of financial and management issues at the centers, but also to understand the scientific issues. Maintaining effective relations with donors is critical.

Both the Chairman and the Secretariat are responsive to the Group as a whole, although functionally within the Bank, and responsible for managing the Bank's budget for the CGIAR. The Bank representative to the Group, on the other hand, has the responsibility of speaking for the whole institution, which does not pay much attention to the CGIAR, and when it does often has different views from those actually engaged with the Group. This is a difficult task.

UNDP has been a very active cosponsor, and an important source of personal leadership. It also provides substantial funding—though a lot less currently than in the past—but on a much lower scale than the World Bank. That funding has always been in project form reflecting the operational approach of the UNDP. The projects were often conceived imaginatively, for example to promote collaboration among centers, or jump-start new initiatives. Most of the money has flowed from the so called global, or centrally funded, UNDP programs, with relatively little involvement of the bulk of UNDP activities, which operate at the country or regional level.

In contrast to the World Bank, and to UNDP, FAO is not a significant provider of financial resources to the CGIAR apart from its obligations as a cosponsor to support the structure of the Group. FAO joined the list of donors to centers with a small contribution in 1997. This does not mean, however, any lack of influence or activity. As the international organization concerned with food and agriculture, the FAO touches the CGIAR and its centers at multiple points. It not only hosts and partly finances the Technical Advisory

Committee and its secretariat (whose functions are described above), but provides TAC with expert inputs, from the preparation of analytical reports to convening expert consultations. FAO has been, particularly in the early years, a prolific source of proposals for funding.

A very important part of the FAO/CGIAR relationship has concerned plant germplasm. FAO provided the organizational home for the International Board for Plant Genetic Resources from its founding 1974 until the end of the 1980s. At that time, after a very long negotiation during which the CGIAR attempted to find ways for the board to secure enough freedom from bureaucracy to function effectively while remaining within the organizational umbrella of the FAO, a decision was made, reluctantly, to move outside as the independent International Plant Genetic Resources Institute. IPGRI remained in Rome and considers the FAO as a major partner. More recently, an agreement has been negotiated under which the genetic resources held by 11 CGIAR centers were formally placed under the auspices of the FAO in 1994 as part of the international network of *ex situ* collections. This might be regarded as an extension of the cosponsor function of providing a working link between the informal CGIAR, in this case the independent and autonomous centers, and the formal international organizational structure. The signatory centers have agreed to abide by provisions of the International Undertaking on Plant Genetic Resources, as interpreted in the agreements. Exactly what this may mean in the future is unclear, as the agreement is being renegotiated to ensure conformity with the Convention on Biological Diversity.

As a UN organization operating on the one nation one vote principle, FAO has been a forceful advocate for a larger voice for developing countries in the CGIAR. As described above, FAO provided the structure through which non-contributing developing countries were for many years represented at the CGIAR table. The FAO Director General has argued strongly on behalf of developing country candidates for various posts in the System, and for many years has effectively reserved the Executive Secretaryship of TAC for a person from Africa.

UNEP has for some years been a very small contributor to the CGIAR. Like FAO it does not have substantial funds for development programs, and has had difficulty in meeting its obligations as cosponsor. UNEP was added to the list of cosponsors in 1995, as part of the "renewal" process of the CGIAR, in recognition of the prominence of environmental issues on the CGIAR agenda.

The 43 national donor members of the CGIAR, as of the end of 1998, came in all shapes and sizes. Quite a few did not meet the nominal minimum annual level of half a

million dollars in that year. Others, of course, gave much more. Some supported only two or three centers, a few gave to all; some provided predominantly unrestricted support, others projects only, or a mix. Some provided support that was restricted not to a project but to a specific program or area of research. Japan, a large donor, asks centers to propose a program of research for its support each year and to report the following year on the progress of that program. A growing number of donors in recent years have arranged to consider project proposals from several centers on a competitive basis. Some have reserved a portion of their support for activities carried out in collaboration with their own research institutions. CIRAD, the French research organization, negotiated a number of agreements with centers under which it provided the services of its own scientists for collaborative work which the centers supported in part with other funds. In short a bewildering array of arrangements is used by industrialized country donors to support the research agenda of the CGIAR.

Developing countries initially were slow to join the CGIAR as donor members. The first was Nigeria (the host of IITA) in 1974. Thereafter the numbers rose slowly. There has been a rush of new developing country members in the past few years, in response to a special effort by Chairman Serageldin, who saw this path as the most natural and effective way of overcoming the criticism that the CGIAR was a Northern donor's club. As might be expected the response from the countries that host centers has been particularly strong. Eleven developing countries are hosts to 13 centers—Kenya and the Philippines each have two. As of the end of 1998, nine of these 11 countries were members. Each of the nine gives a substantial share of its funds to the local center, although they are encouraged to participate more broadly. Those that do support other centers have sometimes paid local currency to the center in their country, leaving it to that center, through its extraterritorial privileges, to distribute the funds in hard currencies to the others. Many of the developing country members which are not hosts to centers are the sites of substantial continuing center research. To date, the expansion of the numbers of developing country donors does not seem to have much impact on the proceedings of the CGIAR.

Of the eleven multilateral donor organizations, we have discussed the four cosponsors. Among the seven others, only two have world wide mandates, and the others are regional. All of the seven provide restricted, often project, support to specific centers in accordance with their mandates and capabilities. To chose one example, for many years, the Inter-american Development Bank restricted its support to centers with headquarters in Latin America, although these centers also work outside the region, and several others work on Latin American problems. The IDB made contributions in inconvertible funds arising from

repayments of its loans. More recently the IDB has started supporting centers based elsewhere for work in Latin America. It has begun an innovative endowment fund based on contributions provided by Latin American countries from funds loaned to them by the IDB, but has also reduced its direct support.

Among the Foundations, Kellogg was present initially, and returned to the rolls in 1998. Only Ford and Rockefeller have played a consistent role. Their most important contribution was, of course, starting the whole enterprise. Between them, they have contributed about \$100 million over the life of the Group. The sum is evenly divided, so that it represents a larger share of the smaller Rockefeller Foundation program. Once the Group was well underway, the Foundations came to play a relatively small role financially, but have continued to meet important needs for small amounts of flexible funding, for centers and for the system, and to espouse innovative ideas that did not initially appeal to official donors. They are also recognized for their objectivity, and hence are looked to for guidance on perplexing issues.

In the early years, the donors in North America (the Foundations, Canada, the United States, the World Bank, UNDP and the Inter-American Development Bank, met before sessions of the CGIAR to exchange notes, and prepare for the discussions. This practice has become quite rare. The European Donors have, however, continued their preparatory sessions, with the goal of coordinating their views. They have made debates at CGIAR meetings simpler by designating one or two spokesmen on particular questions. Another important grouping has been the Nordic countries, which have provided a higher proportion of their aid to the CGIAR than most other donors. Representatives from Denmark, Norway, Sweden, and Finland have concerted on various issues and presented common views, thereby giving those views greater impact.

The influence of particular donor representatives in the work of the Group has varied considerably, as would be expected. The relative size of a donor's contribution, and its political influence play some role, but not a determining one, in this outcome. The level of preparation, institutional and personal commitment, capacity in English (the working language of the CGIAR although simultaneous translation in French and Spanish operates at all full Group meetings), and length of experience in the Group were also important. Those donors who constantly change their representatives have usually had less influence on the deliberations than donors who were represented by the same articulate people over long periods.

Centers: The second set of actors consists of the centers—of which there are 16 at present, as shown in Table 2. All of them are independent institutions with recognized international status managed by boards of trustees most of whom are chosen for their expertise and serve as individuals. Maintaining the international prerogatives necessary for the centers to operate has been something of a struggle over the years. It started easily enough: the typical initial framework was a negotiated agreement between one of the foundations and the government of the host country which accorded the necessary exemptions from exchange and import controls (including the right to move germplasm in and out), immigration and labor laws, domestic taxes and licensing restrictions, which were needed for operation of an international laboratory. As the centers moved toward broader sponsorship, the initial format no longer worked very well for the older centers, nor was it appropriate for the new ones.

The issues became a lot more complicated as national sensitivities over the abridgement of sovereignty through extraterritorial privilege increased. It was therefore necessary for many of the international centers to revisit this question and make fresh arrangements. (For a complete summary of the situation center by center, see Sachdeva 1997.) Depending on the provisions of national law, it may be possible for a government to grant an international center the privileges required by statute. The alternative, which has come to be preferred, is for two or more governments or international bodies to incorporate a center by treaty. The resulting institution then meets the legal definition of an international organization, permitting it to negotiate a headquarters agreement with the host government. Once recognized as an international organization in the host country, a center can more easily obtain such recognition elsewhere for branch operations.

For this approach to result in an international research center on the CGIAR model, however, there must be national governments or international organizations willing to

Table 2: CGIAR Centers as of 1999

International Center for Tropical Agriculture - CIAT

Cali, Colombia

Focus: To contribute to the alleviation of hunger and poverty in tropical countries by applying science to the generation of technology that will lead to lasting increases in agricultural output while preserving the natural resource base. Research is conducted on germplasm development of beans, cassava, tropical forages, and rice for Latin America and on resource management in humid agroecosystems in tropical America, including hillsides, forest margins, and savannas.

Center for International Forestry Research - CIFOR

Bogor, Indonesia

Focus: To contribute to the sustained well-being of people in developing countries, particularly in the tropics, through collaborative strategic and applied research in forest systems and forestry, and by promoting the transfer of appropriate new technologies and the adoption of new methods of social organization for national development.

International Center for the Improvement of Maize and Wheat - CIMMYT

Mexico

Focus: To help the poor by increasing the productivity of resources committed to maize and wheat in developing countries, while protecting the environment, through agricultural research and in concert with national research systems.

International Potato Center - CIP

Lima, Peru

Focus: To contribute to increased food production, the generation of sustainable and environmentally sensitive agricultural systems, and improved human welfare by conducting coordinated, multidisciplinary research programs on potato and sweet potato, by carrying out worldwide collaborative research and training, by catalyzing collaboration among countries in solving common problems, and by helping scientists worldwide to respond flexibly and successfully to changing demands in agriculture.

International Center for Agricultural Research in the Dry Areas - ICARDA

Aleppo, Syria

Focus: To meet the challenge posed by a harsh, stressful, and variable environment in which the productivity of winter rainfed agricultural systems must be increased to higher sustainable levels, in which soil degradation must be arrested and possibly reversed, and in which water use efficiency and the quality of the fragile environment need to be ensured. ICARDA has a world responsibility for the improvement of barley, lentils, and faba bean, and a regional responsibility in West Asia and North Africa for the improvement of wheat, chickpea, forages, and pasture. ICARDA emphasizes rangeland improvement, small ruminant management and nutrition, and rainfed farming systems associated with these crops.

International Center for Living Aquatic Resources Management - ICLARM

Makati City, Philippines

Focus: To improve the production and management of aquatic resources, for sustainable benefits to present and future generations of low-income producers and consumers in developing countries, through international multidisciplinary research in partnership with national agricultural research systems. The declining state and threatened sustainability of fisheries due to overfishing exacerbated with poverty and pollution, and the potential for increases in aquaculture production, call for research which includes understanding of the dynamics of coastal and coral reef resource systems and of integrated agriculture–aquaculture systems, investigating alternative management schemes in these systems, and improving the productivity of key species.

International Center for Research in Agroforestry - ICRAF

Nairobi, Kenya

Focus: To mitigate tropical deforestation, land depletion, and rural poverty through improved agroforestry systems. Trees in farming systems can increase and diversify farmer income, make farming systems more robust, reverse land degradation, and reduce the pressure on natural forests. ICRAF carries out research with national agricultural and forestry research systems, non-governmental organizations, and other research partners, and is focused on two major thrusts: finding alternatives to slash and burn agriculture in the humid tropics; and, overcoming land depletion in subhumid and semi-arid Africa.

International Crops Research Institute for the Semi-Arid Tropics - ICRISAT

Patancheru, India

Focus: To conduct research leading to enhanced sustainable food production in the harsh conditions of the semi-arid tropics. ICRISAT's main crops—sorghum, finger millet, pearl millet, chickpea, pigeonpea, and groundnut—are not generally known in the world's more favorable agricultural regions, but they are vital to life for the one-sixth of the world's population that lives in the semi-arid tropics. ICRISAT conducts research in partnership with the national agricultural systems that encompasses the management of the region's limited natural resources to increase the productivity, stability, and sustainability of these and other crops.

International Food Policy Research Institute - IFPRI

Washington, D.C., USA

Focus: IFPRI was established to identify and analyze alternative national and international strategies and policies for meeting the food needs of the developing world on a sustainable basis, with particular emphasis on low-income countries and on the poorer groups in those countries. While IFPRI's research is specifically geared to contributing to the reduction of hunger and malnutrition, the factors involved are many and wide-ranging, requiring analysis of underlying processes and extending beyond a narrowly defined food sector. IFPRI collaborates with governments and private and public institutions worldwide interested in increasing food production and improving the equity of its distribution. Research results are disseminated to policymakers, administrators, policy analysts, researchers, and others concerned with national and international food and agricultural policy.

International Water Management Institute - IWMI

Colombo, Sri Lanka

Focus: To foster improvement in the management of water resource systems and irrigated agriculture. IWMI conducts a worldwide program to generate knowledge to improve water resource systems and irrigation management, to strengthen national research capacity, and to support the introduction of improved technologies, policies, and management approaches.

International Institute of Tropical Agriculture - IITA

Ibadan, Nigeria

Focus: IITA conducts research and outreach activities, with partner programs in countries of Sub-Saharan Africa, to help those countries increase food production on an ecologically sustainable basis. IITA seeks to improve the food quality, plant health, and postharvest processing of its mandated crops—cassava, maize, cowpea, soybean, yam, and banana and plantain—while strengthening national research capabilities.

International Livestock Research Institute - ILRI

Nairobi, Kenya

Focus: To increase animal health, nutrition, and productivity (i.e., milk, meat, traction) by removing constraints to tropical livestock production, particularly among small-scale farmers; to protect environments supporting animal production against degradation by tailoring production systems and developing technologies that are sustainable over the long-term; to characterize and conserve the genetic diversity of indigenous tropical forage species and livestock breeds; and to promote equitable and sustainable national policies for the development of animal agriculture and the management of natural resources affected by animal production, encouraging, in particular, those policies that support strategies for reducing hunger and poverty, for improving food security, and for protecting the environment.

International Plant Genetic Resources Institute - IPGRI

Rome, Italy

Focus: To encourage, support, and engage in activities to strengthen the conservation and use of plant genetic resources worldwide, with special emphasis on developing countries, by undertaking research and training and by providing scientific and technical information.

International Rice Research Institute - IRRI

Los Baños, Philippines

Focus: To improve the well-being of present and future generations of rice farmers and consumers, particularly those with low incomes, by generating and disseminating rice-related knowledge and technology of short- and long-term environmental, social, and economic benefit and by helping to enhance national rice research.

International Service for National Agricultural Research - ISNAR

The Hague, The Netherlands Focus: To help developing countries bring about sustained improvements in the performance of their national agricultural research systems and organizations. ISNAR does this by supporting their efforts in institutional development, promoting appropriate policies and funding for agricultural research, developing or adapting improved research management techniques, and generating and disseminating relevant knowledge and information.

West Africa Rice Development Association - WARDA

Bouaké, Côte d'Ivoire

Focus: WARDA's work is aimed at strengthening the capability of agricultural scientists in West Africa for technology generation to increase the sustainable productivity of intensified rice-based cropping systems in a manner that improves the well-being of resource-poor farm families and that conserves and enhances the natural resource base. Research covers rice grown in mangrove swamps, inland valleys, upland conditions, and irrigated conditions.

Source: CGIAR Secretariat

assume responsibility for the center without exercising their implicit right to control it. The founding governments or organizations must cede virtually all of their authority over the

center to its board of trustees, and the host government must agree to provide the required privileges and immunities to such an organization. The facilities granted may be less than those that would go to a more traditional international organization headquarters, but are significant and can be controversial, as for example agreeing to tax-free status of expatriate scientists whose salaries are at the international rather than the local level. While repeated experience shows that host countries benefit greatly from the research performed and the opportunity to collaborate directly with international scientists, the government must also recognize that the center's priorities are set on an international basis, and may not always coincide with the government's own priorities.

With funds received directly from the donors, the centers implement their programs, which are the programs of the CGIAR. They embrace the major food crops of the developing world, livestock, fisheries, forests, water management, and production systems. There are also centers concerned with germplasm conservation, national agricultural research and food policy. Some of the centers have global mandates; some mandates are defined by geographic or agroecological regions. Three of the centers which have global mandates and are not oriented primarily to biological research are in developed countries, but the others are located in the ecologies where their research is applied. Most are not unitary operations, but list a dozen or even more regional offices. We will not attempt to summarize these programs further here.

At the center level the principal actors are the members of the board of trustees, the director general and internationally recruited senior scientific staff, locally recruited staff, and the host government. External collaborators are principally the governments and national agricultural research systems in developing countries, other international research institutions, advanced scientific laboratories, NGOs, private businesses, and aid donors both as financial supporters and financers of projects using center research results.

The center boards are both the strength and a weakness of the CGIAR system. As the units that control the centers, they are the symbols and guardians of center autonomy. There are usually from 12 to 16 members, most of whom are selected by the board itself. As a rule three per center are chosen by the CGIAR through a non-objection process in which Board choices are usually respected. Usually one, but sometimes up to three, are designated by the host government, and are the only board members who represent an outside entity. Except for the host country representatives, and the center directors general who serve *ex officio*, the board members are selected for their relevant expertise in science, management or other skills,

and serve in an individual capacity. They come from a range of countries involved in the center as donors or users of research results, so that national origin, and in recent years gender, are factors in the selection process. A few are officials of donor organizations, where those organizations see no incompatibility in their staff serving on boards of organizations that are recipients of their funds.

The boards appoint the directors general of the centers, and in this way are responsible for the quality of center management. They meet, however, only once or at most twice a year, with occasional committee sessions in between. There is a perception that in many cases, the boards have been under the thumb of a strong director general, dependent on him or her for information, and not really in control of the course being followed by the center. Many members are busy people; they often do not spend the time and effort, and perhaps are not encouraged to do so, necessary to stay on top of the work of the center, which is difficult to do in any case from a distance. The CGIAR system has devoted a great deal of time and effort to the selection of board members, and other measures to improve the functioning of the trustee system, and some progress has been made. The bottom line is that while the actual operation of the boards is far from the ideal, no better system has been suggested, and that the net product is positive in most cases. Boards do usually recognize and deal with real trouble when it occurs, and the difficult cases have been handled without too much damage being done.

Before leaving the centers, a word about the directors general. This position requires the incumbent to spend a large amount of time raising money from donors, while exercising scientific and other leadership at the center, and coping both with difficult management and logistical problems of far-flung operations, and the demands of their boards and the CGIAR system itself. Devolution of some responsibilities to deputies or other senior subordinates, which appears an obvious step, does not seem to work very well in general, although there are exceptions. It is frankly a wonder that so many people have been found over the years able to survive the stress of such positions and do well in them.

4. Structure and Processes of the CGIAR

The structure of the CGIAR is sufficiently complicated that it may be worth summarizing, at the risk of repetition. The Consultative Group itself, consisting of the donor members plus until now the representatives of developing countries, has no legal personality and thus can be said to exist only when it is actually meeting. It has a Chairman and Secretariat, both provided

by the World Bank. The CGIAR is supported by a Technical Advisory Committee, with its own Secretariat, operating from the FAO. In recent years, the Group has created standing committees on finance and oversight, and in 1998 a Consultative Council to consider issues between meetings, or explore particularly complex questions during meetings. None of the three is authorized to act on behalf of the Group. The TAC has recently incorporated an Impact Assessment and Evaluation Group which for a few years operated independently. Other advisory committees deal with genetic resources policy, non-governmental organizations and the private sector. All of these newer entities are examined below in the discussion of institutional learning in the policy cycle.

Table 3 lists the principal units of the CGIAR in their broad relationship to each other. The newer ones appear in italics. No lines representing hierarchical or other relationships have been provided; trying to express the number and different qualities of the relationships would risk making the table unintelligible.

The Consultative Group meets twice annually. It has tried several times to reduce the frequency to once a year in order to reduce the opportunity cost to participants, but as so far failed to hold to the lighter schedule. There is no formal structure, no constitution or bylaws or rules of procedure. Unwritten norms have evolved through practice, and have changed to reflect the growing size and complexity of the system. The governing principles are informality and consensus, coupled with respect for the autonomy of centers and the sovereignty of donors. The consensus approach produces outcomes which often represent, for many participants, not their first preference but something they can live with. Where consensus is not easily arrived at, simple positive propositions can just be set aside, at least for the moment. More complex or urgent matters are sometimes referred to existing committees, or a special ad hoc group for further consideration and report. The outcomes of the consensus process are non-binding agreements that are not considered as "legal." For centers, failure to conform may result in the loss of some support, whereas for donors there are no obvious penalties.

Although the meetings have the appearance of intergovernmental sessions, which they in fact are to a considerable extent, the strong CGIAR tradition of responsibilities being given to individuals on a personal rather than a representative basis, is felt even here. This approach affects the behavior of the officials who represent donors at the Group meetings, and thus the atmosphere of the meetings, making a strong contribution to the informality of the sessions.

See Table in separate Word file (Farrar.Chart.doc)

Relations among the actors remain excellent. The average quality may have deteriorated over time, particularly for new participants, because of the increased size of the CGIAR, the growing complexity of its objectives, and the slow dissipation of its original momentum. The creation of more small groups may compensate to some degree for the size problem.

Increasingly over the years, CGIAR meetings have been attended by representatives of international research enterprises which are not supported by the CGIAR, but often have some of the same donors. A flock of separate meetings and exhibitions, as well as various social occasions provide an opportunity for interaction with the donors, and with institutions and individuals engaged in agricultural research or related work. The CGIAR meetings, particularly the fall meeting in Washington, are occasions for bringing together a large share of the community involved in development oriented agricultural research, and this is likely to continue even after the creation of the Global Forum on Agricultural Research (GFAR) which is discussed below.

While some meetings of subgroups of the CGIAR are designated in part or in whole as closed, and are open only to those invited, structure is quite open internally. Generally, however, meetings are for members and invited observers only. This helps create the in-group atmosphere that makes informality possible. This sense of exclusivity has probably contributed over the years to the difficulty experienced by the CGIAR in making itself and its works widely known. The accomplishments of some of the centers, particularly IRRI and CIMMYT, have gotten some public attention, but the underlying CGIAR has had very little. In recent years the System has actively sought to break out of its relative obscurity through public relations activities. This has involved publication of more and more attractive publications, organizing newsworthy occasions, press releases, and efforts to form national support groups in major donor countries. One step taken in 1997 was the creation of an enterprise jointly financed by the centers called Future Harvest which has had considerable success in lining up well known figures to participate, and in placing materials in influential publications.

Membership in the CGIAR is open to non-profit entities accepting its goals and wishing to contribute resources above a minimum level of \$500,000. Joining is accomplished by agreement with the Chairman, and recognition by the Group. The only case in which a

prospective member was refused was that of Taiwan. The government of Taiwan is host to the Asian Vegetable Research and Development Center, an enterprise very much like a CGIAR center, and meeting one of the Group's priorities. Neither the AVRDC nor its host government has been acceptable for participation in the CGIAR because of the opposition of China. This is an illustration of the fact that the CGIAR is by no means free of international politics, although it is clearly less political than most formal international organizations. The CGIAR has not sought membership from profit-making companies, because of perceptions of conflict of interest. Contributions of funds from private companies are, however, welcomed by centers if not accompanied by inappropriate conditions. In 1995, the CGIAR established a Private Sector Committee to improve communication with this group.

The actual governance processes of the CGIAR are restricted to members. On the other hand, the Centers and the System itself are open and active in seeking research partners, and disseminating research results to potential users. There are many sub-networks, whose boundaries are defined by the subject covered

Two issues of the quality of participation have received a lot of attention. The first of these, the role of the South has been a constant concern, as is discussed in detail below. In recent years, the CGIAR has worked hard on the second issue, gender. It has had more success in including a gender focus in its research than in finding senior roles for women in its structure. The Ford Foundation has been particularly strong, along with the International Development Research Center (IDRC) and some governments, in encouraging attention to questions of gender.

It is perhaps not surprising that, very early in its existence, the CGIAR contemplated the use of modern information technology, corresponding to its high level of science and its dispersed nature. It was initially blocked from moving ahead with a CGIAR-wide computerized communications system by procedural problems, but later became a pioneer in using electronic mail internationally. (Lindsay et al, 1994) While it has not continued to be on the cutting edge of this field, the CGIAR makes full use of information technologies as they evolve with significant benefits, both internally and in external collaboration. Participation in the CGIAR or receiving its benefits, does not depend, however, on having access to such technology.

5. The policy cycle

As defined by Reinicke (1998), the policy cycle of public policy networks involves five stages: initiating the network; policy formulation/negotiation; implementation; compliance and enforcement; and policy reformulation/institutional learning. While the first of these stages, initiating the network, has been fully discussed above, and the second, policy formulation/negotiation partially covered, the remainder of Reinicke's outline constitutes a useful framework for continuing our analysis, picking up with policy formulation.

Policy formulation and negotiation, continued

As a basis for what follows, it is valuable to understand the process by which the CGIAR determines priorities and allocates resources, which might be described as its core function. While the specifics of this process have changed many times over the life of the CGIAR, the broad outline has remained much the same. It seems most useful, therefore, to trace that broad outline, and then look at some of the present practice which is particularly relevant to an understanding of the dynamics of the CGIAR process.

Priorities are set in the CGIAR on the basis of recommendations by the TAC, which has prepared a series of priorities papers starting with a relatively informal document written by Sir John Crawford in 1974. Over the years, the papers have been based on increasingly complex and formal exercises. They necessarily take account of donor preferences and policies, and of likely funding levels. The draft papers are discussed in the CGIAR, revised if necessary in the light of the discussion and considered to be approved. The Group does not attempt to make detailed changes.

Centers go through somewhat similar exercises, producing strategy papers, usually after extended consultation with collaborating research institutions and government representatives in developing countries. When approved by center boards, these papers are published and widely circulated, but are not reviewed in detail by TAC or the Group collectively.

The process for resource allocation to centers of the CGIAR has always started, from the early years, with the submission of a proposed program and budget for the coming year, review of that submission by the TAC for scientific content and priority, and by the CGIAR Secretariat from the financial viewpoint. The centers then revise their request in the light of the comment, though they are not bound to conform to it, and submit a revised proposal to the

donors. The latter then make their pledges for the year, and the World Bank funds are allocated in the light of those pledges.

Initially a simple procedure, the process has become more complex and detailed over the years. In the 1980s, the centers were asked to prepare five year plans, which were reviewed by TAC, approved by the Group and then become the framework for annual funding. This system was unsatisfactory in practice, mainly because the funding levels for the later years fell significantly short of the levels planned for most centers, reducing the relevance of the five year framework. A system of classifying research and other activities was also introduced, and applied both to the determination of priorities and the denomination of annual budgets and expenditures, making possible a direct comparison between the approved priorities and the actual programs undertaken on a functional as well as a center basis.

The current system uses the categories as the basis for a matrix of all activities on what is called the “CGIAR research agenda.” Centers are required to plan in this framework, with a rolling three year horizon. They also frame their plans in terms of projects or management units, which may overlap the program categories. The active lives of projects are not limited to three years, but are appropriate to the project. The submissions include both the strategic and scientific justification of the research and an appraisal of the likelihood and probable source of financing. The CGIAR has two passes at the annual proposals, preceded in each case by reviews conducted by TAC and the CGIAR Secretariat: the first in the spring meeting in the form of requests from the centers to the Group and individual donors, and the second in the fall in the form of a financing plan for the coming year. World Bank funds are distributed to centers as a proportion of the funding actually received by each center

Implementation. In a situation that distinguishes the CGIAR from most other cases, implementation of the research it was designed to support was well underway at IRRI and CIMMYT before the CGIAR came into existence, and was beginning at IITA and CIAT. Further stages of implementation involved not only finding ways to provide continued support to these four, but also the creation or adoption of additional centers with similar purposes. Proposals came from all directions. Some of them, like the Potato Center (CIP) in Peru, were from institutions that existed or were in process of formation that could be molded into the CGIAR model. The Foundations and the FAO had been requested to explore a number of possibilities. Some of these led to creation of centers such as the International Center for Research on the Semi-Arid Tropics (ICRISAT) in India, some to development of programs

that were divided among existing centers (for example research on food legumes) and some, like water management and fisheries, to no action by the CGIAR in the short run. Lacking any operational capacity of its own, the CGIAR co-opted the capacities of its members to work on its behalf. Thus once studies by foundation experts had provided a basis to proceed, the Group requested Ford to become an implementing agent for ICRISAT, to work with a group of interested donors in designing the program and structure, negotiate with the potential host government, identify a board of trustees and an initial staff, and otherwise take steps toward the creation of the center.

As a potential source of funding, the CGIAR was approached on behalf of many existing and planned programs, some center-like and some not. The Group experimented with various forms of partial support to enterprises that did not fit the model of independent centers working on food issues: to the Computerized Agricultural Research Information System (CARIS), an information program managed by FAO on a pilot basis; to the West African Agricultural Rice Development Association (WARDA) in support of part of its research but not its extension work; to the International Center for Insect Physiology and Ecology (ICIPE) by trying to get centers to subcontract to ICIPE research related to insect pests. None of these succeeded. Experience with the CARIS pilot led the CGIAR to withdraw support, the ICIPE relationships never developed, and WARDA was ultimately remodeled into a full fledged center. (The centers themselves often undertake activities with other partners, but remain responsible to the CGIAR for everything they do. They have been slow to subcontract substantial responsibilities to others.)

The expansion of the number of centers supported by the CGIAR continued through the first decade of the system, leading to a pattern of support to 13 centers by 1980, ten dealing with production biology for different commodities or ecologies, and one each for plant genetic resources, national agricultural research and food policy. Even after a center was established, the content of the work was not static. There was gradual change in the content of what was done, in response to priority changes. IRRI added upland rice to its work on irrigated systems; ICRISAT developed collaborative programs in Africa. A further round of expansion took place in 1988, to a total of 18 centers, subsequently reduced by mergers to the present 16.

Compliance and enforcement. Compliance in the CGIAR has two dimensions, closely interrelated. One is the performance of donors in providing resources needed to implement the research agenda they approve annually (although usually in a longer term

framework) through the processes of the CGIAR. The second dimension is the adherence of the autonomous centers to the priorities determined by the CGIAR on the advice of its Technical Advisory Committee, to the comments on the programs and budgets they submit, and to the results of external reviews conducted by the system.

Donor funds must be provided so that they match the requirement both in total and in detail. A large proportion of unrestricted funds are required to enable the centers to operate efficiently; restricted or project funding must largely target elements within the approved program. Looked at in the long haul, donor performance has been good, a succession of annual decisions by many diverse donors amounting to solid and reliable overall support. There are instances of fluctuating support by individual donors in the total provided, which have usually been compensated by others. There have also been instances of restricted funding being provided for activities that were not consistent with collective decisions on priorities, and at least some cases of centers pursuing lines of research in spite of discouragement from the TAC and the Group. Taken together these have not amounted to major diversions from the road charted by the CGIAR. For most of the life of the system, the World Bank used its contribution to bring the total annual funding levels closer to the pattern of agreed priorities than would have been the case without this intervention. More recently, however, there have been major problems on both total funding and support to specific centers. These problems are treated in the following section. The CGIAR has no effective means of enforcement vis a vis donors, whose participation is entirely voluntary. It uses persuasion in all its various forms, and often with considerable success.

Centers are generally responsive to the views expressed through the CGIAR, although they are legally independent of the Group, and are not compelled to comply. They have sometimes persisted with allocations of resources contrary to the guidance provided, particularly when supported by one or more donors. Centers have little choice but to conform with the attitudes of donors if commonly held.

Under this heading , we can consider the mechanisms employed by the CGIAR to review the performance of the centers it supports, including their success in achieving priority goals, their effectiveness and their efficiency. In order to reduce the need for individual donors to monitor performance themselves, the CGIAR has organized reviews of each center at five year intervals by an independent panel of experts. Reports of the reviews are transmitted to the Group with comments on program issues from TAC and on management issues from the CGIAR Secretariat. The Group considers the report, and the comments of the

center board. In some cases it offers guidance to the centers. The outcome is taken into account by donors in making their decisions concerning support to the center.

When a more troublesome management problem has developed at a center, apparently beyond the capacity of the board to cope, more direct actions have been taken. In some cases, one or more of the principal donors to the center, with the support of others and often of the CGIAR Chairman and Secretariat, has intervened directly to bring about a resolution. The usually pro forma nomination of board members by the CGIAR can be used more purposefully to place members on the board with a strong, if still informal, mandate to introduce change. An alternative, when circumstances permit, has been a quickly organized ad hoc panel review. In each case, of course, it is the threat of withdrawal of donor support that is the ultimate sanction. Fortunately, such occurrences have been rare.

Policy reformulation and institutional learning. The CGIAR has been considered a very stable, even staid, institution throughout most of its life. During most of the CGIAR's history, change took place incrementally. One example of such incremental change is the introduction during the 1980s of a search committee process and a broadened range and depth of consultation with members before selection by the cosponsors of candidates or appointees for key positions in the system (Baum 1986: 175). Another was increased concern among donors, pressed to justify their continued investment in the system, with measuring the impact of the research. This led to a major impact study at the system level in 1982-84 (Anderson, Herdt and Scobie, 1988), to gradually expanding efforts at all of the centers to determine as specifically as possible what had happened as a result of their work, and recently to creation of an Impact Assessment and Evaluation Committee.

More substantial change in policy and structure began to occur in the latter part of the 1980s, and continued into the following decade. Among the factors setting the stage for change were: growth in the number of members; expansion of the CGIAR's mandate to include management of national resources; establishment of a complex world regime for the conservation of plant germplasm which challenged the role of CGIAR centers; problems arising from the growing relative role of private business in agricultural research and a much greater focus on the ownership of rights to the output of agricultural research; and demands from stakeholders outside of the System for a greater voice in its affairs. The most important cause of change, however, was financial adversity: development assistance resources started to become scarce soon after the CGIAR had decided to broaden its goals and its programs.

In the years 1992 and 1993, the resources provided to the core program of the CGIAR leveled off and then declined, an event which provoked serious rethinking. Among the principal events that took place in the period from 1993 through 1997 were the completion of another TAC paper on priorities and strategies, the creation of the two standing committees on finance and oversight, establishment of ad hoc panels on the CGIAR vision and on structure and strategy, convening of a high level meeting of the Group held at Lucerne, the first such meeting since the first Bellagio meeting of 1969, creation of advisory committees dealing with NGOs, the private sector, germplasm, and impact assessment, and of a Global Forum on Agricultural Research. Rather than trace the history of this active period, we will consider three important cross-cutting aspects of the outcome: function, policy and structure.

In a paper written in 1998 for the third review of the system, the CGIAR Oversight Committee, as background to the consideration for possible changes in the governance system, identified seven **functions** of the current CGIAR:

- Research and knowledge generation: the original purpose and still the core function of the system.
- Custodian of genetic resources: collectively the CGIAR supported centers hold more than 600,000 accessions of more than 3000 crop, forage and pasture species, one of the largest existing collections of stored plant genetic resources, and certainly the largest for tropical crops.
- Capacity building and human resource development: from the start, CGIAR centers sought to improve the capacity of their collaborators among the national agricultural research systems of developing countries through training and technical advice. One of the centers, the International Service for National Agricultural Research (ISNAR), has strengthening national research systems as its exclusive goal. The Group has never reached a full consensus, however, on the relative priority to give to this function, given the large size of the task, the availability of other sources for this kind of technical assistance, and the competition for resources with research, where the CGIAR comparative advantage is clearer.
- Building alliances, networks, and partnerships: both the transaction costs and expectations from collaboration are high, and the question how to make this partnership role more effective remains open.

- Managing facilities and campuses: many CGIAR centers are physically substantial institutions, and maintenance costs are significant.
- Advocacy and fund raising: mobilizing money has been a major role for the CGIAR throughout its life, but is becoming every more of a preoccupation as it becomes more difficult. Because of its prominence, the Group also finds itself acting as a spokesman—directly and through the centers—on numerous controversial issues such as the priority for agricultural research, the importance of agriculture in development, the precariousness of adequate future food supplies, how to meet the food consumption needs of the poor in the developing world, the need to balance production and environmental goals, the value of biotechnology for food production and poverty reduction in developing countries, and many others.
- A forum on broader issues: after serving for many years as an informal venue for the discussion of many aspects of agricultural research and related fields which fell partly or fully outside its own action programs, the CGIAR created in 1996 a Global Forum on Agricultural Research (GFAR), supported by regional fora. The GFAR structure offers virtually all the stakeholders in this broad field an opportunity to make their viewpoints known, exchange ideas and propose initiatives for consideration by the CGIAR and other groups. The motivation for its creation was in part to overcome the sense of exclusivity with which the CGIAR was regarded by many of those working in the same or related fields. (CGIAR Oversight Committee, 1998: 3-5)

Reformulation of **policies** in the CGIAR has been continuous, and after the very early days, reflected changes in priorities in the donor community more than it did independent fresh thinking within the CGIAR itself. Thus from the focus on production of food in the developing world, there was a shift toward concern for increasing incomes for poor people so that they could afford adequate diets. This was accompanied by a growing concern for the consumption or demand aspects of the food balance, as well as the supply or production aspects. The International Food Policy Research Institute (IFPRI) was a strong spokesman for adding a consumption/nutrition focus to the research program. It was accompanied by a growing interest in socioeconomic and policy research, not only at IFPRI but at other centers as well. More attention to the role of women in food production and consumption, and to gender questions in general was adopted by the CGIAR at the insistence of a number of donors.

The change in mandate, which took place in the period 1987 to 1991 involved giving greater weight to the sustainability of production systems and the management of natural resources, already present in the statement of CGIAR goals, until this became a priority effectively equal to the earlier emphasis on increased productivity. This change had a dual effect: making the research programs of the existing centers a lot more complex than they had previously been, and paving the way for an expansion of the number of centers supported which now reached a maximum of 18 through the adoption of centers working on fisheries, forestry, agroforestry, water management and plantains and bananas. One result from this shift in emphasis meant greater focus on issues that extended beyond single commodities or even farming systems, which in turn has encouraged the creation of a number of intercenter collaborative activities, frequently involving non-CGIAR partners.

In 1976 and 1981, after five and ten years of existence, the CGIAR mounted system reviews, which considered various aspects including **structure**. In both reviews, a small team of outside experts worked under the guidance of a panel composed mainly of donor representatives and other insiders. In each case, the panel was headed by the Chairman of the Group. The results were debated by the CGIAR itself. A major focus of each review was the problem of a shortage of resources relative to the planned expansion of activities. The first review proposed creation of a standby committee to act in emergencies, and the second of a program committee to review center budgets. In both cases the motivation was to overcome the unwieldiness of the CGIAR acting by consensus as a plenary body. The standby committee idea was reluctantly accepted but never implemented, and the program committee was rejected. According to the CGIAR chairman of the time, the idea of giving a committee authority to act on behalf of the CGIAR "ran against the spirit of egalitarianism and the consensual decisionmaking that was fundamental to the Group's way of working" (Baum, 1986: 104; see also 148-149). While these two reviews did make some changes in operational approach, they generally served to confirm the basic structure and policy being followed. The CGIAR, feeling itself sufficiently studied and reviewed, failed to carry through on the suggestion that system reviews should be undertaken every five years. The third one did not take place until 1998.

At the midterm meeting of 1993 the Group finally gave up its distaste for standing committees, and established two of them. The first, the Oversight Committee, was tasked with ensuring that due care and diligence are exercised in the operations of the CGIAR and the centers, and advising the Group on particular issues. While it may receive ad hoc assignments from the Group or the Chairman, it basically selects its own agenda. It is composed of six

members chosen by the Chairman for their personal capacities, who serve for three years. The Committee elects its own chairman. The CGIAR Secretariat provides staff support. (This description and those that follow are taken from CGIAR Secretariat 1996.)

The Finance Committee is intended to provide leadership for the efficient management of the Group's finances, supplementing functions performed by the Technical Advisory Committee and the CGIAR Secretariat. It has ten members elected by caucuses of the members of the Group: two from among the developing country members, six from the industrialized country members who have contributed at or above the \$1 million level in the previous year, and one from the international and regional organizations and foundations. The World Bank representative is permanently on the Finance Committee, and has in fact served from the beginning as chair. The CG Secretariat provides staff support.

A year later, faced with a very complex situation in relation to its stewardship of plant genetic resources, the CGIAR established an advisory mechanism, a Genetic Resources Policy Committee, consisting of experts appointed in an individual capacity, to advise the Group and the CGIAR Chairman, who, after some controversy, was authorized by the Group to speak on behalf of the centers in this field. Staff support is provided by IPGRI. This is an important topic, but is too complex and volatile to be treated adequately within the bounds of this paper. There is divergence among international legal regimes, the FAO International Undertaking on Plant Genetic Resources, the Convention on Biological Diversity, the various conventions concerning intellectual property rights and patents, including the Multilateral Trade Agreement provisions on Trade-Related Intellectual Property Rights. The CGIAR may be seriously affected by the terms on which these divergences are ultimately resolved. Its ability to perform research could, and its custody of massive germplasm resources could be compromised. The CGIAR operates at a significant disadvantage in the discussions because of its lack of legal status as an organization, and the need for the centers involved to negotiate positions acceptable to all of them. This was the rationale for giving the Chairman of the CGIAR the role of spokesman on this topic.

Further changes took place as part of the renewal process in 1994-95. An important part of this process was a set of deliberate moves to bring various constituencies considered as partners of the CGIAR and the centers into closer relationships. To this end, so called partnership committees were established: an NGO Committee and a Private Sector Committee. Each is supposed to bring to the CGIAR the perspective of its sector, and propose ways in which its constituency can work more effectively with the centers. The motivation for

creation of the NGO Committee was to try to contain increasing criticism of the work of the CGIAR by NGOs speaking on behalf of the South and particularly the poor in the South, and demanding greater participation for these groups. In the case of the private sector, the motivation was a desire for the CGIAR to find better ways of collaborating with the sector which was becoming predominant in advanced biological research, benefited substantially from the public goods products of the CGIAR without contributing much in the way of resources, and could affect, in both positive and negative senses, the ability of the CGIAR to conduct its research and make the results available to poor people in the developing world. The Private Sector Committee was expected to advise particularly on biotechnology and intellectual property issues which have been prominent on the CGIAR agenda in recent years. While the NGO Committee has been the more active of the two, both have become a regular part of the CGIAR landscape, are represented at meetings, and present an annual report. In neither case it is yet clear how much they will contribute in the long run

An entirely different and far-reaching sort of change growing out of this period of ferment in the CGIAR was the Global Forum on Agricultural Research (GFAR), which has the mission of helping to mobilize the various stakeholders that constitute the global agricultural research community with emphasis on alleviating poverty, increasing food security and promoting the sustainable use of natural resources. GFAR has no formal connection to the CGIAR, although it has a seat at CGIAR meetings, and is partially supported by the World Bank out of its CGIAR contribution. GFAR is supported by a National Agricultural Research Systems (NARS) Secretariat, located at the FAO in Rome, and four regional fora, built on regional alliances of national agricultural research systems in Asia, Latin America, West Asia and North Africa and Sub-Saharan Africa. While GFAR is very broad in its reach, its *raison d'être* is to enable the national research systems of the South to speak to, and potentially influence, the CGIAR. It has gathered once in preliminary plenary session, immediately before a CGIAR meeting in October 1996, and plans its first formal session for the year 2000, this time independently.

People and institutions from the South have had important roles in the work of the CGIAR from the beginning. They have been seated at the table at meetings, as donors or regional representatives. Developing country research institutions have been consulted on behalf of the Group about priorities and about the performance of individual centers on numerous occasions. Scientists and other experts from developing countries make up half of the Technical Advisory Committee, and almost half of the members of center boards, and are well represented in leadership scientific roles in the centers. NARS are the principal clients

and collaborators of the centers, and helping to strengthen them has been an important, if not well defined, item among center goals. The relationship has, however, always rankled the Southern scientists and managers. Whatever was done to make it seem more acceptable, the flow of information and advice seemed always to be from the centers to the NARS. The centers were rich, and the NARS poor; center scientists receive substantial salaries, the NARS researchers very low pay. GFAR grew out of an attempt by the CGIAR to integrate the developing countries into the CGIAR system. It has been very active, and is presently preparing its vision of the future of agricultural research which was discussed with the CGIAR in October 1999. Whether it will be able to have a substantive impact and expand the sense of ownership of the work of the CGIAR by the national research systems is uncertain. Perhaps most important, while the CGIAR will certainly listen to what GFAR has to say, when the time comes to act it will respond to its own imperatives, the policies and needs of the donors, and not, if there is a conflict, to the demands of the NARS. As long as donor agencies are providing almost all of the funding for the centers, it seems likely that they will continue to protect their right to make the final decisions.

In its most recent structural adjustment, the CGIAR created at the end of 1998 yet another standing committee, the Consultative Council. At International Centers Week in October of that year, the Group found itself in the unusual position of being in substantial disagreement with recommendations made to it, in this case by the Third System Review. The meeting came toward its end with many complex questions, including the possible restructuring of the CGIAR itself, requiring further study, and a detailed sort of discussion and revision not possible in the plenary body. For this purpose the Chairman proposed, and the Group agreed, that he should create a Consultative Council under his chairmanship, which would follow up on the discussion of the review proposals and bring a possible resolution of those questions back for the Group to consider at its next meeting. Mr. Serageldin nominated a total of 29 members. Five were individuals, the chairs of the standing and advisory committees (Oversight, Finance, TAC, NGO and Private Sector). Four were two representatives each from the Committee of Board Chairs and the Center Directors Committee. The remaining twenty were representatives of members: seven each from northern and southern country members; two (FAO and UNDP) from the cosponsors; three from other multilateral organizations; and one foundation. It is interesting to note that the number of chairs in the Consultative Council numbered one more than the 28 delegations that attended the first meeting of the CGIAR in May 1971, although on that occasion more than one person represented some of the members and observers delegations

The Consultative Council duly brought its recommendations concerning the Third Review proposals to the CGIAR at its following meeting in Beijing in May 1999. Among the recommendations approved was that the Council, reduced in size, should be kept in existence to advise the Chairman on his call. It would engage in consultations and facilitation, not in decisionmaking. The Chairman of the CGIAR would propose its structure and terms of reference. At International Centers week in the fall of 1999, the Council, not yet in its more permanent form, met twice. In the first instance it proposed a resolution of the problem of the CGIAR chairmanship for the immediate future, which had become contentious. In the second, responding to proposals from the CGIAR Chairman, it suggested the TAC should be charged with advising on what the CGIAR should be doing in the period up to 2010, and in a second phase, how the resources of the CGIAR should be deployed to implement the proposed course of action. The Consultative Council also recommended that it should continue in its present form over the year to be devoted to these matters, to make recommendations to the CGIAR on these matters and facilitate taking action. The Council's proposal that Mr. Serageldin should continue as Chair for two years, and its other recommendations were accepted by the Group.

Thus the structure of the CGIAR organization has changed in recent years to become very different from what it was. Further change is in the wind. At its two meetings in the year 2000, the System will be considering what further steps it must take to face the many challenges that confront it.

6. Outcome and future prospects of the CGIAR

The recent system review called investment in the CGIAR “the single most effective use of official development assistance, bar none.” (CGIAR System Review Panel, 1998: vii). In spite of a record of important achievements, however, it has never been able to match the initial Green Revolution that, although it took many years to achieve its full impact, started before the CGIAR was founded and in fact made that founding possible. Success is defined in terms of increased production of widely consumed food crops, sustainable production systems, improved income and nutrition for the poor and the alleviation of poverty. The means of success are the creation of international public goods in the form of agricultural technology and production systems. Quite apart from the physical impact of research, the Green Revolution and the model of the international agricultural research center narrowly focussed

on major commodities changed the general appreciation of the role and focus of agricultural research in development.

The CGIAR System faces a number of difficult issues at present. A significant, almost dominating, strategic issue is what policy to adopt with regard to the use of modern biology, or biotechnology as it is generally known. The opportunities modern biology offers to improve the productivity of sustainable agriculture in the South are enormous. They range from strengthening pest resistance and tolerance of salt or drought, changing plant architecture to raise the harvest index, and finding effective vaccines against recalcitrant diseases of domestic animals, through increasing the vitamin A and iron content of cereals. The gains likely to be made can have a large impact on the lives of the 800 million people estimated to be malnourished. In fact a case can be made that without the effective use of biotechnology, the world could find itself facing a renewed food crisis in the first half of the next century.

At present, most biotechnology research is conducted by private companies and is concentrated on crops grown in the North. Centers supported by the CGIAR spend about \$30 million per year on biotechnology research, a tiny fraction of the global expenditure. Resources are a problem, but there are also questions about institutional structure. The traditional international center research institutions may not be the form best suited to take advantage of the new techniques. There are also major issues of the control of germplasm, the management of intellectual property rights, access to proprietary technology at affordable cost, and in general how to work more effectively with the private sector. The CGIAR has always had difficulty in defining where its role should end and that of national system begin. This is particularly difficult in dealing with biotechnology, as powerful and attractive as it is. Some perceive a risk that biotechnology research will be institutionalized in a way that will worsen the disadvantage of the South, and that the CGIAR may become a part of such a development.

Still other related issues concern the safety of biotechnology processes and products. These have become very controversial in the North where they are discussed with relatively little attention to Southern interests. These controversies have the potential, however, for compelling some donors to seek to restrict the use of biotechnology in their aid programs, in response to domestic politics. Good sense as well as politics require that adequate safety and monitoring systems be put in place to protect producers, consumers and the environment. Creating such systems is well beyond the present capacity of many developing countries.

Should the CGIAR attempt a role here, in spite of its present lack of any comparative advantage? Literature on this general subject is pouring forth in books, articles, tracts and even full page newspaper advertisements. For an introduction which takes a pro development viewpoint, see Persley 1999. The CGIAR is actively contemplating its strategy: should it reorganize to maximize efficient use of modern biology, and if so what traditional structures must it change, and what activities must it curtail. There are strongly held opinions in all sides, and the outcome is uncertain at this writing.

Other issues facing the CGIAR System follow:

The enterprise has become highly complex, both in its goals and its structure, to the point where effective management has become a problem. This is not internally generated complexity, but rather a result of the interaction between the goals of the CGIAR and the changing situation in which they are being pursued. Many actors would make major simplifying changes in the CGIAR if they had the power. The problem is the lack of consensus about what these changes should be. To cite just two examples, there are some who think that the costs, particularly opportunity costs, presently being paid for broader participation will far exceed its practical benefits to the effectiveness of the CGIAR. Specific steps to reduce such costs are, however, virtually impossible in the present atmosphere. There is a widespread belief that the system is over-reviewed, with too much center staff time devoted for answering questions from various sources. Each careful look at the topic, however, reveals an important audience for the reviews, and the danger that cutting back will simply create a further need.

Conservation of germplasm is an illustration of burgeoning complexity and inefficiency, as the centers struggle with multiple outside forces. The conflicts in this area illustrate, among other things, the tensions between formal and informal international relationships, and the role of advocacy NGOs.

There has been great difficulty in reaching an agreed policy on intellectual property rights, an issue that is closely allied with the question of relationships with the private sector, as well as the management of conserved germplasm. The unanswered questions include how to protect research results to make sure that they are available to the poor; finding ways to access private sector technology relevant to the CGIAR mission, and finding ways to reward local conservation and innovation.

The financial outlook is uncertain. In a study prepared for the third system review, Selçuk Özgediz, Management Advisor in the CGIAR Secretariat, has identified the phases of

development of the CGIAR as growth, consolidation, broadening, crisis and renewal, each with important financial aspects. Relative stability has been reached for the present, but it seems precarious. The sustainability of support, particularly unrestricted grants, from traditional sources is in question.

The system for enforcing priority judgement on the programs through the World Bank contribution has been eliminated, and nothing put in its place for ensuring that CGIAR priority decisions are implemented. This has created a danger that, over time, the CGIAR will lose its sense of purpose and drift into a pattern where the activity simply represents a sum of individual donor preferences.

At its meeting in October 1999, the CGIAR decided once again to examine fundamental questions about itself, using the old mechanism of the TAC allied with the new mechanism of the Consultative Council. The system has a great many advantages as it turns to face these problems, and a record of having been able to adjust when confronted by difficulties in the past, and then move on. One can only hope that it will succeed once more.

III. LESSONS

Almost since the beginning of the CGIAR, there have been efforts to draw lessons from its experience to apply elsewhere. There are no examples of replication of the whole structure, which is not surprising since the nexus that made the CGIAR possible would be difficult to reproduce. If we consider separately the operating level of the centers, and the overall governance structure, there are numerous examples of similar approaches having been taken.

First at the center level, the largest number of institutions are also in the field of agriculture and related sectors, where the CGIAR model is known, and where in fact a number of the institutions have probably had the possibility of association with the CGIAR itself. The pattern is the familiar one of a private international institution, governed by an independent board, with an international scientific staff. One health oriented institution, the International Center for Diarrheal Disease Research in Bangladesh, was remade in that form when it lost its status as an arm of the Southeast Asia Treaty Organization. In one other case, there was an effort to sustain a French-speaking regional center for agricultural and health research in Côte d'Ivoire on the CGIAR model, which failed because of disagreements among the governments which were at once international sponsors and donors. It should be noted, however, that the center model is not uniformly admired. An analyst considering its use in the health research field found much to criticize in the high cost of international salaries, and the invidious comparisons with the colleagues in national institutions who would be expected to collaborate and ultimately carry on the work. (Mirza, 1994)

Even more frequent, however, are programs that do not involve support to autonomous research centers, usually instead providing grants for defined purposes to existing entities with their main finance from other sources, that have borrowed a part of the CGIAR superstructure. This often consists of an overall group of heterogeneous membership, and a technical advisory committee composed of experts serving as individuals to set priorities and monitor quality. The donors may function within the overall group, or a smaller, separate financing committee, but maintain direct relationships with the recipients, rather than pooling their resources. There are many variations on this theme, a number of which are covered in case studies for this project.

We turn, in conclusion, to some general lessons that can be suggested on the basis of CGIAR experience:

- The importance of having a relatively simple and important goal, and a clear cut methodology for approaching it, a principle now being violated in some respects by the CGIAR itself. A consensus of this type justifies flexibility in more minor matters. Goals have a tendency to become more complex over time because of changes in the problems faced, and one must be ready to adjust.
- It is of great value to involve of the world's leading experts in the subjects being addressed, and to seek first rate scientific talent.
- The value of participation at the governance level of senior officials of donor organizations, who are sufficiently committed to remain active over long periods.
- For appropriate tasks, the efficiency of relatively small, autonomous implementing agencies managed by experts who are protected from extraneous interference. More generally, the efficiency for scientific tasks in particular, of decentralized management structures. It should be noted that a system for maintaining quality of science and good management must be in place for this approach to work. And that there must be a tolerance for frustration on the part of all the stakeholders who are barred from exerting all of the influence they would like.
- The workability of relatively informal systems of setting priorities and monitoring performance in a system marked by commitment and trust. Such a framework permits strategic flexibility as a result of informality. On the other hand, the critical necessity for creating such commitment and trust of having reliable accountability mechanisms in the first place.
- The importance for viability of an informal international structure of having a formal protective net (the cosponsors generally) and a single proactive facilitator (In the case of the CGIAR, this was the World Bank).
- The importance also, of individual leadership at the top. Rather than write a long essay on this subject, we can note that such leadership needs to be energetic, tolerant, and protective of the special qualities of the network. He or she needs to be a good chairman, adept at recognizing and articulating consensus, and able to take a neutral position vis a vis the opinions of the organization than is his or her home base.
- If a private sector relationship is critical for a new public organization, the necessity of defining that relationship well at the start, and working hard to keep it viable. The long term importance of this relationship for the CGIAR was not foreseen at the start. Even

had it been recognized, however, it is not clear that the present difficulties could have been avoided.

- To the extent that development assistance funds are required, the increasing difficulty in obtaining those, and the near impossibility of getting them without debilitating restrictions.
- It is possible to finance long term activities on the basis of repeated short term commitments, if a suitable framework is in place.
- The value of applying scientific knowledge to local problems, as opposed to trying to import technology that may have worked in other conditions.
- The importance of building measurement of impact into research program planning from the start.

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