

THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

TECHNICAL ADVISORY COMMITTEE

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STUDY OF EXTERNAL REVIEW PROCESSES IN THE CGIAR

(Agenda Item 3)

Proposed Objectives of the Discussion

Professor V.W. Ruttan's draft paper on external review processes in the CGIAR was discussed by TAC in a joint session with Center Directors at its October 1986 meeting in Washington, D.C. They made a number of comments on the draft and requested Prof. Ruttan to take them into account in the preparation of his final draft.

TAC and the Committee of Center Board Chairs in joint session, and separately, will consider Prof. Ruttan's paper (attached) at this meeting. TAC will decide whether or not the paper has adequately tackled the issues it raised in the terms of reference for the Study and in subsequent discussions of the topic. It will then either prepare its commentary on the Ruttan Study or develop a policy proposal for the consideration of the CGIAR.

TAC SECRETARIAT

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Study of the External Review Processes
in the CGIAR

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Contents

	page
The Global Setting	1
Governance and Management	3
Research Policy, Planning and Evaluation	6
Reviewing the IARCs	9
Recommendations	13
Issues and Concerns	26
Tables	33
References	36

Human Review

ARDA Review

AS Review

Appendices

- 1.0 Consultations and meetings
- 2.0 Long range planning and evaluation (from Report of the Review Committee, 1977)
- 3.0 Review Procedures (from Report of the Review Committee, 1982)
- 4.0 Center Staff Evaluations of Review Process
 - 4.1 Analysis of Staff Response to Questionnaire
 - 4.2 Staff Perspectives
 - 4.3 The Time Cost of Reviews
 - 4.4 Questionnaire Design and Response
- 5.0 Analysis of External Program, Management and Stripe Reviews
 - 5.1 Comparative Analysis of Review Reports
 - 5.2 The CIAT Reviews
 - 5.3 The CIMMYT Reviews
 - 5.4 The CIP Reviews
 - 5.5 The IBPGR Reviews
 - 5.6 The ICARDA Reviews
 - 5.7 The ICRISAT Reviews
 - 5.8 The IFPRI Reviews
 - 5.9 The IITA Reviews
 - 5.10 The ILCA Reviews
 - 5.11 The ILRAD Reviews
 - 5.12 The IRRI Reviews
 - 5.13 The ISNAR Reviews
 - 5.14 The WARDA Reviews
 - 5.15 Stripe Review of Farming Systems Research
 - 5.16 Stripe Review of Off-Center Activities
 - 5.17 Stripe Review of Training

1.0 The Global Setting

We are, in the closing years of the twentieth century, completing one of the most remarkable transitions in the history of agriculture. Prior to this century almost all increases in food production were obtained by bringing new land into production, except for limited areas of East Asia, the Middle East and Western Europe. By the end of the twentieth century, however, almost all of the increase in world food production must come from higher yields, that is, from increased output per hectare and per animal unit. This transition from dependence on the natural resource base to a science based system of agriculture is occurring in most of the world within a single century: beginning in the first half of the century in presently developed countries and at mid-century in countries in the developing world. Many areas, particularly sub-Saharan Africa, are only now beginning the transition by putting into place the essential agricultural research and extension capacity.

In this study I am concerned with the development of the system of International Agricultural Research Centers (IARCs) that are funded by the Consultative Group on International Agricultural Research (CGIAR). The issue addressed is how to maintain and enhance the quality and the productivity of the research programs at the CGIAR Centers.

In considering the concluding assessments and recommendations, we should keep in mind the task that lies ahead for the international agricultural research community. That task is the completion of a global agricultural research system. It is essential, by the first decade of the next century, that agricultural research capacity be established for each

commodity and for each agricultural production factor or resource input of economic significance in each agroclimatic region of the world. Unfortunately, fewer than a dozen developing countries have agricultural research systems with the capacity to generate the new knowledge and the new technology needed to sustain the growth of production that is consistent with the growing needs of their countries. Thus, a very substantial strengthening of national agricultural research systems must take place in other developing countries.

The "global agricultural research system" discussed in this study, should be understood to comprise the systems organized and supported by national and provincial (or state) governments, as well as the International Agricultural Research Centers (IARCs). It includes the agricultural research conducted or supported by private organizations as well as by public institutions. It should include national research institutions in the developed market economies and the centrally planned economies as well as in the developing countries. Clearly, the need is growing for more effective articulation among the several institutional levels in the system and between the suppliers and users of the new knowledge and new technology.

2.0 Governance and Management

Any attempt to evaluate the methods used by the CGIAR/IARC system to assure the quality of its research program and the productivity of its research effort must consider the principles guiding its system of governance and management. The system was established and is funded by a consortium of national governments, multilateral development agencies, and private foundations. System policies are formulated and implemented through the CGIAR Secretariat and its Technical Advisory Committee (TAC). Each research Center within the system is an autonomous corporate entity. The Center's policy is determined by its Board of Trustees and implemented by an administration appointed by and responsible to the Board. This unique combination of centralized oversight and decentralized management and operation is a notable characteristic of the CGIAR/IARC system.

The appropriate model for thinking about the relation between the Consultative Group, including its TAC, and the Centers is not the relation between a corporate headquarters and its semi-autonomous operating divisions. A more appropriate analogy is the partially owned subsidiary of a venture capital firm in which the parent corporation is represented on the board of directors but does not directly participate in the management structure. Many major corporations have found it useful to spin-off partially owned subsidiaries in order to give them greater autonomy and flexibility. This pattern is most common in research-intensive areas where creativity is highly valued.

Several very good reasons can be stated for decentralizing responsibility in the planning and management of research intensive organizations. One is that any system, such as a research organization, in which there is great uncertainty about the relation between effort and

outcome is dependent for its success on redundancy, decentralization, and feedback in the design of its decision processes and for the success of its operations. Our understanding of the importance of redundancy goes back at least to Von Neumann's demonstration that a system can be made more reliable than any of its parts by adding sufficient redundancy (Von Neumann, 1956). Public administrators, who typically prefer neat linear organization charts, however, have been slow to absorb the implications of Von Neumann's insight for the design and management of research institutions.

A second and related reason is the nature of the information that must be brought to bear on the research-planning process. It has become increasingly obvious that effective research planning requires the close collaboration of natural and social scientists and of agronomists, engineers and planners. This is because research resource-allocation decisions involve either explicit or implicit judgement of two major questions.

1. What are the possibilities of advancing knowledge or technology if resources are allocated to a particular commodity, problem or discipline? What is the probability of success if, for example, resources are allocated to the transfer, development or enhancement of nitrogen fixing capacity? Such questions can only be answered with any degree of authority by researchers on the leading edge of their discipline or of the problems being considered. Intuitive judgements of research administrators (even research administrators who formerly were scientists), planners and economists are rarely adequate to provide answers.

2. What will be the value of the new knowledge or the new technology to society if the research effort is successful?

If efforts to develop nitrogen-fixing capacity in maize, for example, are successful, how will the capacity to provide an efficient source of plant nutrition compare with the economic and environmental costs of other forms of nitrogen fertilizer? Answers to such questions require the use of formal economic and social analysis, not intuition. Indeed, intuitive insights of research scientists and administrators are no more reliable in answering questions like the two posed here than the intuitive insights of research planners in evaluating scientific and technical potential.

Many arguments about priorities in the allocation of research resources founder on the failure of participants to clearly recognize the distinction between the two preceding questions and the differences in expertise and judgement that must be brought to bear in seeking responses to them. If the answers are to be adequately reflected in the allocation of research resources, a continuing dialogue is required among the people responsible for setting research policy, making plans and carrying out the work. It should be regarded as a strength, rather than a deficiency, of the CGIAR system that individual Centers have, after careful consideration, been able to reject what they regarded as inappropriate recommendations by EPRs and EMRs (see Appendix 5).

The appropriate performance test of decentralized responsibility in a research system is scientific productivity, successful new product development and high private or social rates of return. The recent impact study suggests that most CGIAR centers are meeting these tests admirably (Anderson, 1985).

3.0 Research Policy, Planning and Evaluation

It has been repeatedly documented that agricultural research is one of the more productive investments available to both developed and developing nations (Anderson, 1985, pp 12-14; Ruttan, 1982, pp. 241-249). Great variation is found, however, in the estimated rates of return of national agricultural research systems, research centers, institutes and stations, and commodity research programs.

The sources of this variation are not well understood. Obviously, part of this variation is due to factors external to the agricultural research institutions. Agroclimatic environments range in hospitality to different agricultural activities. Variability in genetic resource endowments differ greatly among plant and animal species. Advances in the biological, physical and social sciences occur unevenly across the several science disciplines. The economic and social environments that affect public and private support for agricultural research and the incentives to adopt technology vary among countries and regions. Furthermore, differences in research policy, and in the organization and management of research systems are an important source of variation in the productivity of the human and physical resources devoted to agricultural research.

Over the last several decades a modest amount of research-based literature on the criteria for efficient research resource allocation has been published (Ruttan, 1982, pp 262-297). Much less attention has been given to the problems of organizing and managing agricultural research institutions and to monitoring the performance of agricultural research

programs. The newest CGIAR Center, the International Service for National Agricultural Research (ISNAR), is just beginning to generate a body of information on research organization and management.

Research management and the monitoring of research performance tend to be guided more by rule of thumb, personal insight and idiosyncrasy than by firmly established and effective principles. Site reviews offer a standard approach to the short run monitoring of research performance. But the literature on the research-review process is sparse; it tends to consist, with few exceptions, of mimeographed materials for briefing review panels on their responsibilities (Anderson, 1976; Ronningen, 1979; Ruttan, 1982, pp 147-159) rather than a solid body of tested knowledge.

The Consultative Group on International Agricultural Research (CGIAR) has been particularly sensitive to the problem of performance monitoring. The donors to the CGIAR system consist of national governments, development banks and private foundations; they provide the system with its current total budget of almost \$200 million. The donor community is strongly concerned with assuring its constituency or principals that the resources devoted to the international agricultural research system are being used effectively.

The link between research policy, planning and evaluation is an intimate one. Within the CGIAR system, research policy is the joint responsibility of the Consultative Group and its Technical Advisory Committee (TAC). The recent TAC Review of CGIAR Priorities and Future Strategies, (CGIAR, August, 1985) and the Bellagio report on "Future Strategies for the CGIAR" (CGIAR, February, 1986) are efforts to formulate long range CGIAR policy. Clearly, the objectives of research policy have been widened substantially since CGIAR was organized in 1971. Initially

policy statements emphasized the need to expand food-crop production; over time, issues such as nutrition, employment generation, environmental impact, income generation, and income distribution have been given greater weight.

Research planning often generates great tension among research managers and scientists. This tension frequently results from the uncertainty about the responsibility for and the outcome of the planning process. Within the CGIAR system, responsibility for research planning has rested with the Center Boards, management and staff. It cannot be emphasized too strongly that research planning is dependent on research policy. If explicit policy guides are not available they will remain implicit in the planning process. This concern is reflected in the importance that the TAC and the CGIAR have given to the development of explicit long range plans by the individual Centers.

The effective monitoring of research or an effective review process clearly presumes the existence of an effective research policy and planning processes. In the absence of a clear understanding of the policies that guide a research system and of the objectives and plans that guide the research activities of individual Centers, a review team is analogous to a pilot trying to steer a ship without a map, compass or rudder. This does not mean that reviews should take either policy or planning as givens. Research programs' deficiencies often reflect inappropriate policies or plans.

4.0 Reviewing the IARCs

Since its organization in 1971 the CGIAR, through its Technical Advisory Committee (TAC), has instituted a comprehensive review process. It includes (a) reviews of Center programs and budgets, (b) external program reviews, (c) external management reviews, (d) review of system priorities, (e) activity (or Stripe) reviews, and (f) system reviews (see Table I and Appendix 5.0).

The Centers are highly diverse, not only in commodity focus but, also, in the source of scientific resources; the location of staff posted outside a Center's host country; the emphasis on strategic research, applied research and training; the geographic scope; the extent and type of their training activities; and the reliance on core and special project funding.

The focus of the TAC review activities has shifted over time. Initially, TAC focused on global agricultural research strategy and gave attention to assessing global agricultural research needs, setting priorities for the establishment of new International Agricultural Research Centers (IARCs), locating the Centers appropriately, and determining the mandates of new Centers. When this phase of CGIAR activity came to a close, the TAC directed its attention to operational issues. In 1976 it initiated a series of External Program Reviews (EPRs) that were designed to assess the quality of a Center's research effort and performance in addition to the impact of its research activities.

The need for a system of External Management Reviews (EMR) was stressed in the 1981 report of the second system review (Arnold report; CGIAR 1982). In 1983 the EPRs were complemented by a series of EMRs that were organized by the CGIAR secretariat. The EMRs typically have been

carried out concurrently with the EPRs. EMRs have now been completed at all Centers except IRRI and CYMMYT.

The value of the EPRs and EMRs to the donors to the CGIAR system and to the Center Boards and management is widely recognized. The major qualification to this generalization is that the program reviews were, at times, not so sensitive to managerial deficiencies as, in retrospect, they might have been. This defect seems to have been remedied by the initiation of the EMRs.

The system review completed in 1977 (McCalla report; CGIAR, 1977) recommended that the quinquennial reviews be "concerned with three principal tasks: (1) to evaluate the scientific quality of the current programs, (2) to comment on the scope and balance of current programs, and (3) to evaluate future plans including the explicit review of center proposals to continue projects of long standing " (p 97).

In the second system review (Arnold report), the proposal was made that in addition to the annual external financial audits the review procedures in the CGIAR system should be comprised of five elements:

- (i) Internal Reviews of the Institutions, commissioned
by the Boards of Trustees;
- (ii) Management Reviews of the Institutions, commissioned
by the CGIAR Secretariat;
- (iii) Commodity and Activity Reviews of the system,
commissioned by TAC;
- (iv) External Reviews of the Institutions commissioned by TAC, and
- (v) Reviews of the system, commissioned by the CGIAR.

The second system review (Arnold Report) also noted that a number of donors conducted individual reviews. The report recommended that "in order

not to present the Institutions with an unreasonable burden of reviews, donor agencies should refrain from conducting their own reviews that simply duplicate the agreed mechanisms of the system" (p. 81). This recommendation has been followed by only a few donors. Indeed, a further proliferation of individual donor reviews has occurred since 1982.

Now there is a broad consensus, both inside and outside the CGIAR system, that the system's research performance has more than met the expectations of its founders. Anyone who is willing to take the time to review the recently completed impact study, International Agricultural Research Centers: Achievements and Potential (Anderson, 1985) cannot avoid being impressed by the accomplishments of even the newer Centers. Most of the Centers in the CGIAR system clearly are now reaching a level of maturity that should lead to considerable confidence about both their research and managerial capacity, although all the Centers have not achieved comparable levels of capacity and productivity.

It is apparent, nevertheless, that the system is entering a period when CGIAR must again call on its TAC for more frequent advice about the strategic issues that the global agricultural research system faces. This impression comes across rather clearly from the recently completed TAC Review of CGIAR Priorities and Future Strategies (CGIAR/TAC, August 1985) and the subsequent discussion at the November 1985 Centers Week, at the January 1986 Bellagio meeting, the March 1986 TAC meeting, and the May 1986 Group meetings in Ottawa.

The TAC should again play a more active role in assessing a series of global issues that should include (a) the capacity of public and private and national and international agricultural commodity-oriented research programs to meet national and global food and fiber needs; (b) the demands

that will be placed on production factors and resource inputs (water, plant nutrients, soils, atmospheric quality and others); (c) the need for research to enhance the capacity of the production factors to sustain growth in agricultural production; and (d) the research policy issues that will confront the global system as it continues to develop. The policy issues include (i) the enhancement, management and terms of access to genetic resources; (ii) the funding of national and international agricultural research; (iii) the growth of agricultural output and the productivity of agricultural research; (iv) the interactions among national commodity price, trade and research policies; and (v) systems to strengthen and collaborate with the weaker components of the global system.

5.0 Recommendations

The perspective outlined above has a number of implications for the objectives, frequency and organization of the reviews conducted by CGIAR and individual donors. The recommendations in this section are directed to the conduct of such reviews.

Recommendation 1

Center EPRs should focus primarily on strategic rather than on operational issues

The EPRs should evaluate the rationale of and the resource implications for each Center's long-run strategic plan. This means focusing on (a) the appropriateness of the specific research objectives that the Center has set for itself; (b) the schedule of anticipated research accomplishments; and (c) the staff, facility and financial resources required to achieve the proposed objectives. In order for the EPR to effectively focus its attention on longer run strategic issues it may be desirable to schedule the timing of EPRs to conform to the Center's long-term planning efforts.

The EPR also should give particular attention to the "fit" between the objectives set out in earlier long-run strategic plans and research accomplishments and impacts. In order to do so it will be necessary for the Centers to maintain an active program of technology assessment and impact studies. The linkage of successive reviews of program accomplishment and its effects does not presume not deviating from long-term strategic plan objectives. There should always be a relatively short feedback loop between research findings and research objectives. New evidence can be expected continuously to modify research objectives and research resource allocation.

Recommendation 2

The EPR review teams should assess whether adequate internal processes are in place to maintain and enhance the quality of Center research staffs and of the Center research programs.

Terms of reference for reviews should be developed to indicate clearly the priority to be given to each strategic issue. The EPR review team should attend less to evaluating the scientific quality of the research staff and the research program and more to making sure that the Center has in place the appropriate processes and procedures to assure staff quality and performance. These procedures should include effective internal review processes, external peer consultations, reviews and evaluations, and a program of seminars and symposia. Documentation of the results of such activities should be available to the EPR team.

This recommendation reflects the fact that institute research has become more complex. Because it draws on a greater variety and depth of disciplinary capacities, a single review team no longer has the range of leading-edge disciplinary or professional capacities to adequately perform project and peer review functions. Disciplinary and project activity should be reviewed by individuals who are at the leading edges of their field of science or technology development. They usually will not be the same individuals who are best able to evaluate long-range strategies and priorities--to evaluate relevance rather than competence. The ideal EPR team should be composed of members who are capable of bringing scientific, technical, economic and institutional information together to assess Center and system priorities and strategies.

Recommendation 3

The regular EPR and EMR review cycle should be extended from the present 5-6 years to 8-10 years.

An 8-10 year range should be made the upper limit for EPR and EMR review cycles given that the individual Centers with few exceptions have demonstrated substantial capacity for research planning and management. Nevertheless, in some situations EPRs and/or EMRs may be appropriate on an interim basis or in shorter cycles.

The review schedule not only should be lengthened but also made more flexible. The most appropriate time to schedule EPR and EMR reviews is when a Center is engaged in a long term planning effort. At this time, dialogue with EPR and EMR review teams could be particularly valuable to Center management. The review teams would be able to draw on those members of the Center staff who are thinking about the longer term strategic issues. Another appropriate time for an interim review would be 6-12 months after a new director-general has assumed office and undertaken intensive review and planning activities. Dialogue with an external panel that is experienced in research management and strategy could be highly complementary to a new director-general's internal review.

Recommendation 4

Provision should be made for interim EPR and EMR reviews when indicators of inadequate research performance, managerial deficiencies, or lack of Board policy guidance are present.

A number of mechanisms can be relied on by TAC and the CGIAR to trigger the need for an interim EPR or EMR review or a special consultation with the TAC or CGIAR Secretariat. The TAC-Center liaison representative, in many instances, is the logical person to urge an interim review. A Center Board may find it useful to request a review to make additional professional capacities available on an institute management or operational issue. Sometimes, a Center management may feel that deficiencies in Board policy direction require a review. Both the EPRs and EMRs should be requested to make specific recommendations regarding the need and timing of interim reviews or follow-up missions. In the event of serious program or management problems or deficiencies a follow-up consultation or review may be highly desirable within six months or a year following an external review. When serious problems have been identified it should not be necessary for a Center to wait until an EPR or EMR has been fully considered by TAC and CGIAR to initiate the necessary monitoring of the review recommendations.

The recommendations for management and program reform in the EPR and EMR reports are often diffuse. The oral reports to Center boards and management in contrast, tend to be more specific and direct. Some of the more recent review reports tend to be more specific about reform priorities--to specify which changes are regarded as absolutely essential to the viability of the Center. This trend should be reinforced. Assistance agency staff member frequently experience considerable difficulty in drawing appropriate

implications from review documents if they lack personal knowledge of the institute under review.

Recommendation 5

The Center EMRs should assess the effectiveness of the Center Board of Trustees in providing policy direction and in assuring that the Centers are managed to provide both program quality and relevance.

The first directors and program leaders of the Centers that were initially established by the Ford and Rockefeller Foundations and by the CGIAR were powerful research entrepreneurs. Most had the capacity to energize Center staff and to provide policy guidance for Center Boards. With the expansion in the individual Centers--by several multiples in some cases--over the last two decades leadership has tended to become less collegial and more bureaucratic.

Progress made by the Centers in technology development and the growth in capacity experienced by national research institutions should lead to change in the Centers' mandates and priorities. The need for greater involvement by Center Boards in the development of research policy and in the monitoring of research performance has become increasingly apparent. The need for Center Boards to play a stronger role is apparent from a number of EMR reports and discussions with EMR team leaders.

It will be necessary in the future to give more consideration to the capacity of Center Board members to think strategically about Center research policy and, when necessary, to act more decisively in initiating changes in Center programs and management. The expanding role of agricultural research in the private sector in many developing countries implies a need for

representation from private sector research on Center Boards. A stronger Board role in the development of Center strategies and policies should not, however, be allowed to erode the appropriate distinctions between Board and management functions.

Recommendation 6

The responsibility for EPRs should continue to reside with the TAC and for EMRs should continue to reside with the CGIAR.

The institution of the EMRs has been an important contribution to the capacity of the CGIAR to monitor the performances of Centers. Program deficiencies identified in EPR often can be traced to weaknesses in managerial practices and methods. There are, however, problems with the present system. Despite the advantage of conducting EMRs and EPRs simultaneously, there have been cases of inadequate dialogue between the EMR and EPR teams. In some cases team perceptions of responsibility (EPR to TAC and EMR to CGIAR) have created barriers to team communication and cooperation.

There is some sentiment among donors that these difficulties could be resolved by combining the EPRs and EMRs and reporting the combined team reviews to the TAC. My recommendation is to continue the two reviews as separate activities but to conduct them simultaneously. The results of the two reviews should be reported jointly to the Center's management and Board and to the TAC.

As of yet the Centers have not established internal management review processes. One of the purposes of a second round of EMRs should be to help establish such internal review processes. As internal capacity is

strengthened the need for detailed examination of management and administrative matters by external panels would be reduced. When a second round of EMRs has been completed, it would be useful to examine again whether the EMR process has been sufficiently institutionalized to effectively review both program and management by a single review team.

The TAC should give substantial attention to EMR as well as EPR findings. The criteria for the evaluation of management performance and style must be found in the accomplishments of the research program; consistency with generally recognized management principles is an inadequate criterion. The initiation of new program activities and the redirection of existing programs often pose difficult managerial and administrative problems. In its recommendations to the CGIAR the TAC should consider the recommendations of both the EPR and EMR reports. Greater attention to strategic and managerial concerns in the review process should be taken into consideration in making appointments to the TAC.

Recommendation 7

The staffing and time required for regular cycle and interim EPR and EMR reviews should be adjusted to reflect the preceding review objectives.

The EPR reviews should be staffed by individuals who are chosen for research strategy and policy rather than primarily for disciplinary capacity. The teams should be smaller and the time devoted to the reviews should be reduced. The four to six weeks now required for participation on an EMR represents an obstacle to participation by many active scientists and research administrators.

A TAC member always should be on an EPR team so the information and experience of the team can be directly accessible to the TAC. A written report never can be more than a shadow of what a review team has learned. The EMR should always include an experienced international research administrator in addition to individuals who are trained or experienced in the technical aspects of management. Greater priority should be given to including representation from the private sector agricultural research community on both EPR and EMR teams although the private sector participation may sometimes impose higher costs than public sector participation. Consideration should be given to commissioning special background or policy studies in these areas where the necessary scientific or professional capacities are not readily accessible to or are too specialized for an EPR or EMR team. Center Boards and management should take greater responsibility for commissioning their own special studies in the area of management methods and practice. A few such studies have been commissioned in the past, (e.g., in the area of labor relations) in connection with EMRs. If the Centers themselves were to take greater responsibility for such studies and/or consultations the effectiveness of the EMR process would be increased.

The Group secretariat should consider strengthening its review capacity by adding a staff member who has had substantial responsibility for and is highly regarded in the area of research management to assist in the organization and conduct of EMRs. Such a person might be recruited from former Center management staff members.

Recommendation 8

The TAC should initiate an expanded series of global research policy and strategy reviews.

In the past TAC has conducted reviews of Farming Systems Research, Off-Center Activities, and Training (A 5.14-A 5.16). It also conducted a study of priorities and future strategies (CGIAR, February 1986). Over the next several years the TAC should initiate an expanded set of reviews and studies to resolve the major issues of policy and strategy that will be faced during the effort to complete the global agricultural research system.

One set of studies or reviews should focus on system issues: issues that concern more than one CGIAR Center. A comprehensive look at global rice research needs, capacities and responsibilities is one example; another is a fresh assessment of CGIAR responsibilities and potential initiatives for a number of commodities, such as oil seeds, that do not fall within the mandate of any existing Center. Similar reviews also might be scheduled for other commodities (e.g. maize and wheat) that are included in the mandates of more than one Center. Other reviews might focus on an activity, resource or region. An example of a review with an activity focus might be the implications of recent advances in molecular genetics and genetic engineering for the organization and staffing of the IARCs and their relations with centers of basic research in developed countries. The implications of groundwater contamination associated with more intensive farming systems for Center research priorities is be an example of a review with a resource focus. A review that would combine a geographic and resource focus is the issue of research on soil management in the humid and semi-humid areas of Africa.

A second set of studies or reviews might deal with changes in the relations between the CGIAR system and the environment in which it operates. The role that the CGIAR system should play in relation to the smaller national systems--systems that are unlikely ever to develop substantial capacity for advancing knowledge or even technology--is one example. The implications for Center priorities of the growth of technology development capacity in the private sector of developing countries will need to be carefully analyzed, and implications for system research priorities of economic growth and economic policy for the rates of growth (or decline) in commodity demand will need to be carefully examined.

Such reviews or studies might be conducted in several ways. (a) The traditional way is that in which EPR, EMR and Stripe reviews have been conducted: A group of experts examine the relevant institutions and programs and pool their knowledge and experience to render an informed judgement. (b) A second method is to bring the expertise and leadership available within the CGIAR Centers together to try to resolve an issue of system priority or jurisdiction. The system clearly has much greater capacity now to draw on internal resources for such judgments than when the initial Centers were established and their mandates developed. (c) Another method is to commission independent studies of an issue or a problem to be carried out by an individual or a team with particularly relevant expertise.

In my judgement much greater use should be made of expertise within the CGIAR system than has often been made in the past. The CGIAR now has much greater capacity than in the past to bring scientific and technical knowledge together with economic and institutional analysis in formulating its own priorities and strategies and to enhance its efforts to strengthen national research systems. This capacity needs to be strengthened. However, where

sensitive institutional relations are involved, either within the system or between the system and its environment, independent leadership and judgement from outside the system usually will be required.

Recommendation 9

The next system review should focus on issues of system organization, intrasystem relations and the relations between the CGIAR and nonassociated centers.

One objective of the effort should be to incorporate the international activities of the "nonassociated centers" with the CGIAR system. The CGIAR has not added any new centers since 1980. During the last decade and a half, however, there have emerged, outside the Group, a number of additional international research or coordinating centers that bear a loose relation to the CGIAR system (Table 2). Leadership in the establishment of these "nonassociated centers" was often taken by one or more of the CGIAR donor organizations. Indeed, these "centers" draw their financial support largely from the donors to the CGIAR system. Most participate or hold meetings with their donors or potential donors at the Spring and Fall Group meetings. The budgets for the "nonassociated centers" now run somewhat above \$30 million per year.

Numerous discussions have been held about the appropriate relation of the "nonassociated centers" to the Group (CGIAR, 1984). Among the objections raised have been the constraints on CGIAR funding; the potential burden on administrative capacity of the CGIAR and TAC; and the appropriate organization of factor-oriented research. There are several arguments favoring

incorporation of a number of the "nonassociated centers" into the Group. By and large they are performing research and network functions similar to Group sponsored Center activities and which fall within the scope of Group priorities. Like Group-sponsored Centers they have the advantage of decentralized decision making resulting from corporate autonomy but they lack the centralized oversight of the External Program and Management Reviews conducted by the TAC and the CGIAR. Many of the smaller donors have indicated that the "nonassociated centers" impose a greater administrative burden, relative to the size of the financial resources involved, than do the CGIAR Centers.

I do not share the concern that has sometimes been expressed about the administrative burden carried by the CGIAR and TAC. In my judgement, the system has evolved an administrative and managerial structure that should be capable of providing administrative support and oversight for a system with a budget running in the \$1.0 billion rather than the \$200 million range. Although it may be unrealistic to think of support for the system in this upper range over the next few years, by the early 1990s, as economic growth in the developed world accelerates and current agricultural surpluses erode, and as the CGIAR system completes its analysis of global priorities, it would not be unrealistic to think of the level of support in the \$1.0 billion range.

Recommendation 10

Individual donor reviews should be limited to reviews of the restricted core and special projects.

Effective internal program review processes are now in place at most of the CGIAR Centers (Appendix 4.0). Center staff regard the internal review

process as being particularly effective in evaluating program quality. The EPRs and EMRs are regarded as effective in evaluating managerial effectiveness and Center strategies. Individual donor reviews are regarded as most effective in evaluating off-campus activities--perhaps because these activities are often funded by individual donors as restricted core or special project activities.

It is clear that an effective internal program review process greatly facilitates the EPR process. In Recommendation 6 it was suggested that the next round of EMRs encourage the development of a greater capacity for Center organized managerial reviews and consultations. In Recommendations 1 and 2 it was suggested that the EPRs should draw more heavily on Center-organized program and peer reviews thus freeing the TAC to focus more heavily on longer range strategic issues in its EPR and other review activities.

The system of Internal, Program, Management, Commodity, Activity, and System reviews conducted by the TAC and the CGIAR on behalf of the donors should be adequate to meet most donors' needs for evidence of accountability and performance. Individual donors should limit their review activities to the restricted core and special project activities for which they provide direct financial support. Centers and donors are urged, when project contracts are negotiated, to try to agree on procedures that balance the need for the assessment of accountability and performance against the costs, measured in terms of diversion of management and scientific effort. In many cases donors will find that the information provided by the EPRs, the EMRs and internal review documents will reduce the need for special project reviews.

6.0 Issues and Concerns

A series of issues and concerns that bear on the organization and focus of the CGIAR Center review processes are outlined in this section. These issues have been generated from interviews with donor representatives, Center Boards and management, analyses of review documents, and a survey of institute scientific and administrative staff. The concerns discussed here are not been fully reflected in the recommendations presented in the preceding section.

Impact of Reviews on Center Programs

Donors have a strong impression that some Center reviews (EPRs and EMRs) have had only a limited effect on either the redirection of Center programs or the correction of Center managerial deficiencies. In some cases, for example, in the first WARDA review the team (of which I was a member) clearly was not sufficiently critical of Center program or management deficiencies. In other cases criticism appears to have been muted because the review team generally supported the Center program. Criticism that may have been conveyed orally to Center management and Boards was not in the report to the TAC. In additional cases, Center Boards and management failed to respond to review team criticisms. In still other cases, such as the 1984 IITA review, the EMR team stressed its concerns about managerial style and process and about potential abuse of managerial authority in its oral report to the Board but muted the criticisms in its written report.

Regardless of the reasons, the oversight system that failed to achieve needed reforms of program and corrections of management deficiencies at IITA and WARDA and some other Centers must be faulted. There is a widespread impression among donors that lack of frankness in EPR and EMR reports could

contribute to the loss of review process credibility. Critics should keep in mind, however, that there are serious questions about how explicit the EMR and EPR teams should be about such matters. It is important that deficiencies be corrected without seriously disrupting ongoing Center programs or generating undue anxiety among Center staff.

Impact of Special Projects on Center Programs

The impact of special projects on Center programs have elicited numerous expressions of concern. Donors often encourage and Centers often seek special projects in support of bilateral or multilateral donor programs. Although few people would argue that Center activities should be based on core funds, there have been many expressions of fear that a high ratio of special projects to core funds would distort or even weaken a Center's research effort. The 1986 ISNAR EPR recommended that special project funding be limited to 35 percent of the ISNAR core budget level. In contrast, a paper presented at the Consultative Group Meeting in Ottawa (May 19-23, 1986) on "Broadening Support for International Agricultural Research" suggests that the IARCs should be more aggressive in seeking nonconventional sources of funding.

In considering the form in which support is provided to the IARCs, donors should be concerned with the fact that special project activity does impose a heavier burden on research management than research budgeted under the core program. The response to our staff survey elicited numerous comments regarding deficiencies in the management of off-campus activities. EMR reviews should give special attention to the management of non-core and off-campus activities.

Access to Basic Research Capacity

There is broad agreement that as LDC national research systems become stronger the Centers should move their research focus more "upstream"--toward the basic end of the continuum that runs from adaptive to applied, strategic and basic research (CGIAR, Future Strategies, 1985a). The distribution of effort along the continuum ranges from a high share of total activity at the basic end in the case of ILRAD to primary emphasis on applied research at most centers. Access to basic research capacity in developed countries has been pursued aggressively by CIP and some other Centers through collaborative arrangements with advanced research centers.

Concern has been expressed that some Centers have neglected to maintain either the in-house capacity or build the collaborative relationships necessary to give their research staff access to relevant advances in theory and method.

There is some support for the idea that the Centers should acquire the capacity to act as bridges between the world's most advanced scientific institutions and the national research systems in the developing countries in transferring the new knowledge and research methodology to LDC national research systems (CGIAR, Future Strategies, 1986). One aspect of a number of new emerging biological research techniques is that they promise to dramatically reduce the cost of technology development. Another aspect is that they may enable the solution of problems for which there is inadequate scientific knowledge or research methodology at present.

If the recommendations to strengthen basic research are implemented, a significant change in staff composition at most of the CGIAR Centers is implied. To achieve access and serve as a bridge will require Centers to develop substantial capacity in frontier science and research methodology.

The ability to evaluate the significance of frontier theory and method implies the capacity to work at the same level.

A second problem is that some areas of basic or fundamental research are of great relevance to tropical agricultural development but very little capacity is either available or likely to become available in the developing countries most concerned. It is unlikely that this problem will be resolved without expanding their capacity for basic research in those areas of science that are particularly relevant to the advance of applied research and technology development.

Linkages with Private Sector Research

In the developed countries over the last several decades, the relation between public and private sector agricultural research has been undergoing rapid change. The private sector traditionally has played a dominant role in research leading to advances in mechanical and chemical technology for agriculture. It is now playing an increasingly important role in advancing biological technology.

The last decade and a half has witnessed rapid growth in private sector agricultural research in developing countries, particularly in Latin America and Asia (Pray, 1985). The private sector is also emerging as a significant factor in technology development in a few African countries.

As private sector research and technology development expands, it will be necessary for the TAC, the CGIAR Centers and the Associate Centers to consider such developments in establishing priorities for the CGIAR system. There is a strong impression, both within and without the CGIAR system, that the Centers are less than fully informed about the growth of private sector research and technology development in the countries in which they work and that the CGIAR

and TAC are even less fully informed. Few private sector scientists or research managers have been included on Center Boards or on EPR or EMR review teams.

Future Role of the Technical Advisory Committee

Substantial ambiguity surrounds the appropriate roles and responsibilities of the TAC, the TAC secretariat and the CGIAR secretariat. If the TAC is to give greater attention to major issues of system and global strategy, it will need to devote less attention to the details of the annual Center budget submissions. The introduction of a five year assured core budget "base" represents a major step in this direction (CGIAR, October 1986). If the TAC is to successfully engage itself in issues of system and global research strategy and policy, as suggested in Recommendation 8, it will need to acquire greater scientific capacity on the TAC secretariate staff. It was noted earlier in this study that the greater attention that must be given to strategic and managerial issues should be taken into consideration in making appointments to the TAC.

The Stripe review process has provided the TAC with some very useful experience in conducting inter-Center reviews. The Study of Training in the CGIAR System - 1984 (See appendix 5) is generally regarded as an outstanding analysis of training accomplishments and needs. There are indications that the Centers have found the study useful and are individually adopting many of the study recommendations. The TAC commentary that accompanied the transmission of the training study to the CGIAR was, however, quite general. It did not make specific suggestions of how to implement its own recommendations and the recommendations of the review team. Nor did it suggest how the implementation of the recommendations should be monitored.

This caution may have been due, in part, to sensitivity about autonomy of decision making by the Center Boards and management. As the TAC engages in an expanded series of system level strategic reviews it will be necessary to articulate the implications of such studies for action at the system and Center levels in a manner that have clear policy and management implications.

Clarification of Priorities

The EMR and EPR teams often have had great difficulty in specifying priorities. It is apparent from the review documents that have been reviewed in Appendix 5.0 that the recommendations sometimes reflect negotiated rather than adequately reasoned positions. It is difficult for a review team to avoid identifying important new initiatives, and it is even more difficult for a review team to recommend that major existing activities be discontinued.

In order to force the EPR teams to give more rigorous attention to priorities, a number of donors have suggested that all program recommendations assume no budget growth. An alternative is to prepare two recommendations--one that assumes zero budget growth and a second that assumes a growth of a specified amount, such as 10 per cent.

TAC should consider carrying out an approach that would force review teams to consider more rigorously the trade-offs between program expansion and contraction. A first step might be to make a presentation at a subsequent TAC meeting on the effectiveness of methodologies used in other organizations.

Concerns with the Conduct of Reviews

A number of additional concerns have been expressed by donor officials, Board members, and Center management and staff about the conduct of EPRs and EMRs (See Appendix 4.1 and 4.2 for staff perspectives). These concerns, even though in some cases they clearly are not relevant for all reviews, are listed here.

(1) Some reviews have not been sufficiently open. In some cases staff members have been urged to avoid discussion of controversial issues. Occasionally it has been difficult for review team members to meet individually with known dissidents. (2) Review team chairmen and members are drawn too often from the "old boy" network of former TAC members, Center chairpersons, director generals, and Board members. Particular emphasis must be given in the formation of review teams to balancing individuals who are knowledgeable about the CGIAR system and those in the CGIAR system who are characterized by independent judgement or even a critical perspective. (3) The EPR and EMR reports are not sufficiently critical. By "sanitizing" the reports they lose credibility. (4) The terms of reference for reviews are often too diffuse. Terms of reference should clearly identify priority concerns. Now that two rounds of EPRs and one round of EMRs have been substantially completed it should be possible for future reviews to focus more directly on issues that are critical to the future of the individual Centers and of the CGIAR system.

Table 1.0

REVIEWS OF CGIAR ACTIVITIES: PURPOSES, PERIODICITY, COSTS

NAME OF ACTIVITY	PURPOSE	OUTPUT	PERIODICITY	COMMISSIONED BY	UNDERTAKEN BY	NUMBER OF REVIEWS COMPLETED		DURATION		COSTS	
						73-82	83-85	73-82	83-85	73-82	83-85
Internal Review	Review of research and related activities	Annual Report input to P&B documents	Annual	Center Concerned	Center Concerned	Every year since foundation		Variable depending on Center		NA	NA
Review of Centers' P&Bs	Review of Centers' programs	Recommendations on individual Centers' P&B input to Integrative Report	Annual	CGIAR	TAC CG Secretariat	Every year since 1972		-	4 days of mtg.s	NA	NA
External Program Review	Review of program relevance, impact of ea. Center, & future size & direction	EPR Report & recommendations	Every 5-6 years	TAC	Commissioned Panel	12 ^{2/}	9 ^{3/}	average 146 man days	average 191 man days	\$121K ave. 2 Ctrs. 1982	\$120K ave. 9 Ctrs.
External Management Reviews	Review of the administrative & management systems of each Center	EMR Report and recommendations	Every 5-6 years	CGIAR Secretariat	Commissioned Panel	-	9 ^{3/}	-	-	-	-
Review of Priorities	Review of System level priorities	Report and recommendations	Every 5 years	TAC	TAC	3	1	-	2 yrs.	-	\$170K
Activity (Stripe) Reviews	Information gathering	Report and sometimes recommendations	No regular scheduling	TAC Centers	TAC or consultants, Centers	3 ^{4/}	2 ^{5/}	-	1 yr.	\$53K (1 rvw)	\$275K (1 rvw)
						-	2 ^{6/}	-	-	-	-
Five-Year Reviews of the System	Review of System policies and procedures	Report and recommendations	Every 5-6 years	CGIAR	Review committee with study team	2	0	1 yr.			NA
Impact Study	Review of impact of IARCs on agriculture of dev. countries	Report	1 only	CGIAR	Study team with advisory panel	-	1	-	2 yrs.	-	NA
Budget Study	Review budget, finan. management & reporting in CGIAR	Report and recommendations	1 only	CGIAR	Consultant	-	1	-	2 yrs.	-	NA

1/ NA - Not available

2/ CIAT, CIMMYT (2), CIP, ICRISAT, IBPGR, IITA, IRRI (2), WARDA

3/ CIAT, CIP, ICARDA, ICRISAT, IBPGR, IFPRI, IITA, ISNAR, WARDA

4/ Farming Systems Research at the IARCs
Off-Campus Activities of the IARCs

5/ Training Study. Survey of germplasm conservation activities of the IARCs

6/ Center survey on inter-Center activities. Survey of nutrition related activities at the IARCs

Table 2.0 Some International Agricultural Research Activities Outside the CGIAR*

Center	Primary Focus	Location	Year initial operation	Budget US\$m	(Year)	No. Senior Staff	Programs
ICRPE	insect physiology and ecology	Nairobi, Kenya	1970	4.77	(1982)	46	Crop borers Livestock ticks Tsetse fly Plant resistance Medical vectors Insect pathology and pest management
AVRDC	tropical vegetables	Shanhua, Taiwan China	1972	3.60	(1983)	32	Tomato Chinese cabbage Sweet potato Soybean, Mungbean
ICLARM	living aquatic resources	Manila, Philippines	1973	1.70	(1983)	14	Aquaculture Traditional fisheries Resources development and management Information services
INTSOY	soybeans	Urbana, Illinois,	1973	0.95	(1983)	8	Soybeans
IFDC	fertilizer	Muscle Shoals, Alabama	1974	6.70	(1982)	60	Nitrogen research Nutrient interaction Phosphate research Sulfur research Potassium research Economics research National programs Technical assistance Training
ICRAF	agroforestry	Nairobi, Kenya	1978	2.20	(1983)	18	Agroforestry systems Agroforestry technology Information Training Collaborative research
IIMI	irrigation management	Kandy, Sri Lanka	1984	5.00	(when operational)	10-12 in HQ 3-4 unit	Collaborative research Training Information dissemination
IBSRAM	soils	not fixed	1985	4.54 *	(when operating)	5-10	Headquarters Soil management networks
INIBAP	banana and plantains improvement	not fixed	1985	1.75	(initially)	small	Headquarters Regional networks

* Activities currently using CGIAR meetings or in some other way related to CGIAR activities in 1984 (Total approximately \$30 million).

Table 3.0 COSTS OF TAC COMMISSIONED REVIEWS

		Number of Panel <u>1</u> / Members		Duration (days)		Total man-days		Average Cost per Panel Member (US\$)		Total Review Costs	
		75-81	82-86	75-81	82-86	75-81	82-86	78-81	82-86	75-81	82-86
IRRI	1975/1982	8	9	21	33	168	201	n.a.	10,000	n.a.	108,780
CIMMYT	1976/1982	8	7	14	21	112	147	n.a.	16,420	n.a.	133,540
CIP	1976/1983	6	6	29	53	104	147	n.a.	13,450	n.a.	92,645
IITA	1977/1983	11	9	32	24	209	216	n.a.	11,790	n.a.	117,150
ICARDA	-----/1983	-	9	-	35	-	250	---	12,310	---	125,500
WARDA	1978/1983	3	5	18	40	54	97	n.a.	20,680	n.a.	123,435
CIAT	1977/1984	9	9	18	63	212	267	n.a.	17,610	n.a.	176,260
ICRISAT	1978/1984	8	8	21	52	168	293	n.a.	19,645	n.a.	150,000 <u>3/</u>
IBPGR	1980/1985	3	5	49	52	73	167	n.a.	17,305	n.a.	100,000 <u>3/</u>
IFPRI	-----/1984	-	5	-	27	-	108	---	13,970	---	83,910
ISNAR	-----/1985	-	5	-	35	-	175	---	17,400	---	100,000 <u>3/</u>
ILRAD	1980/1986	7	6	13		91		6,725		53,320	115,000 <u>4/</u>
ILCA	1981/1986	7	7	36		216		13,325		94,140 <u>2/</u>	160,000 <u>4/</u>
Stripe analysis 1980 off-campus activities										53,000	
Training Study 1984											275,000
Priorities Review 1985											170,000

1/ Excluding CGIAR Observer and Panel Secretary2/ Excluding costs of Panel Chairman's travel - borne directly by ILCA3/ Estimated costs4/ Estimated budget

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Appendix 1.0

Consultations and Meetings

<u>Date</u>	<u>Place</u>	<u>Purpose</u>
<u>1985</u>		
Oct. 24-25	Washington, D.C.	Meeting with Technical Advisory Committee (TAC) and Center Directors and Center Board Chairs to discuss study plan and terms of reference.
Nov. 2	Rome, Italy	Meeting with Ministry of Foreign Affairs (Cons. A. Balboni), University (G.T. Segarascia - Mugnozsa, President University of Tuscia; Prof. Luigi Monti Faculty of Agriculture, University of Naples) and National Research Council (Prof. Enrico Porceddu) representatives to discuss Italian donor perspective on study.
<u>1986</u>		
Mar. 19-22	Rome, Italy	Meeting with TAC and Center Board Chairmen to discuss detailed study plan. Meetings with individual Board Chairs to obtain information on Board roles and perspectives on review process.
Mar 24	The Hague The Netherlands	Meeting with Netherland government representatives (a) Ir W. van Vuune, Senior Research Officer/Coordinator International Cooperation Ministry of Agriculture and Fisheries (b) Ir Thomas J. Wassels, Research and Technology Program DPO/OT Directorate General for International Cooperation Ministry of Foreign Affairs (c) Dr. T. M. Warner, Consultant

April 2	Washington, D.C.	Meeting with CGIAR Staff Curtis Ferrer, Doreen Calvo, Peter Geenway, Selcuk Ozgediz, Donald Plucknett, Ravi Tadvalkar
April 8	Washington, D.C.	Meeting with John A. Pino, Agriculture and Forestry Development Division, Interamerican Development Bank
April 9	Washington, D.C.	Meeting with U.S. Agency for International Development: Representatives Anson Bertrand, Rob Bertran, Dana Dalrymple (Office of Agriculture, Bureau for Science and Technology), Edward Rice (Bureau for Asia & Near East), Dwight Steen (Bureau for Latin America), Kenneth Prussner (Bureau for Africa), Thomas Lederer (Bureau for Program and Policy), Harvey Hortik (Agricultural Production Division, Bureau for Science and Technology), Donald Woodley (Deputy Director for Food and Agriculture, Bureau for Science and Technology)
April 22	Minneapolis, MN.	Meeting with Luis Crouch, Member of Board of Directors, Instituto Superior de Agricultura, Santiago, Dominican Republic. Member of ISNAR Board and leader, IITA and ICRISAT EMRs.
May 19-23	Ottawa, Canada	Participant, 1986 Consultative Group Meeting.
May 19	Ottawa, Canada	Meeting with Dr. Paul Egger, Swiss Development Cooperation Agency.

May 20	Ottawa, Canada	<p>Meeting with Emmanuel Salmon-Legagneur, Ministry of Research and technology;</p> <p>Guy Vallaeys, Interministerial Commission for International Research; Max Rives, CGIAR Secretariat (formerly Institut de la Recherche Agronomique), France.</p>
May 21	Ottawa, Canada	<p>Meeting with Timothy Rothermel, United Nations Development Program, New York.</p> <p>Meeting with Takashi Ueda, Economic Cooperation Bureau, Ministry of Foreign Affairs, Japan; Kenzo Hemmi, Board Chairman, International Rice Research Institute.</p> <p>Meeting with Gregg Spendjian, Cana- dian International Development Agency (CIDA); Hubert G. Zandstra and Geoffrey Hartwin, International De- velopment Research Center (IDRC), Canada</p>
May 22	Ottawa Canada	<p>Meeting with Rodney C. Hills and R.C. Manning, Australian Development Assistance Bureau</p> <p>Meeting with Theis Truelson, Royal Danish Embassy, Ottawa; Harald Host- mark, Norwegian Ministry of Develop- ment Cooperation; Arnos Njos, Agri- cultural University of Norway; Bo M.I. Bengtsson, Swedish Agency for Research Cooperation with Developing Countries.</p> <p>Meeting with J.C. Davies and A.E. Ray, Overseas Development Administra- tion, U.K.</p> <p>Meeting with L.H.J. Ochtman, CGIAR Secretariat; Robert Herdt, Rockefeller Foundation (formerly CGIAR Secre- tariat); Laurence Stifel, Internation- al Institute of Tropical Agriculture.</p>

May 23	Ottawa, Canada	Meeting with William T. Mashler, Board Member, International Research Institute for Semi-Arid Tropics (formerly UNDP).
		Meeting with Abbas Kesseba, Inter- national Fund for Agricultural Devel- opment (IFAD).
June 3	Washington, D.C.	Meeting with Robert Herdt, Rockefeller Foundation (formerly CGIAR Secretariat).
June 12	Frankfurt, Germany	Meeting with E. Clemens, Jurgen Friedrichsen, Karl Heinz Wopers, Martin Bilio, German Agency for Technical Cooperation (GTZ); Wilbert Himmighofen, Ministry for Nutrition, Agriculture and Forestry; Gerhard Wenzel, Federal Biological Research Center, Institute for Genetic Resistance; Wolfgang Achtnich, University of Gottingen; Jurgen Kranz, University of Giessen; Ulrich V. Poschinger-Camphausen, German Council for Tropical and Subtropical Research.
June 13	Frankfurt, Germany	Meeting with Klaus J. Lampe and Peter Muller, German Agency for Technical Cooperation (GTZ)
June 23-26	Cali, Colombia	Meetings with CGIAR Technical Advisory Committee (TAC) and CGIAR Center Director-Generals to present and discuss progress on Review Process Study.

October 30 Washington, D.C.
-31

Meeting with TAC, Center Director
Generals, and Center Chairpersons to
present and discuss draft findings
and recommendations.

In addition to the interviews listed above written comments on the
September 15, 1986 draft report have been received from a number of
individuals who have participated or chaired Center reviews.

October 12, 1986	W. F. Raymond United Kingdom
October 15, 1986	Omond M. Solandt Ontario, Canada
October 15, 1986	Lowell Harden Purdue University
November 5, 1986	Luis B. Crouch Dominican Republic
November 10, 1986	M. J. Hirst United Kingdom
November 21, 1986	N. W. Simmonds Edinburgh School of Agriculture United Kingdom
November 11, 1986	Kenzo Hemmi University of Tokyo Japan
November 28, 1986	J. C. ten Houtan Wageningen, Netherlands
November 28, 1986	Guy B. Baird Winrock International India
December 8, 1986	Jos Mortelmans Institut de Medecine Tropicale "Prince Leopold", Belgium
December 8, 1986	Carl Thompson Economic Institute, Veterinary and Agricultural University Denmark
December 11, 1986	Frederick E. Hutchinson Ohio State University United States

Consultative Group on International Agricultural Research

Report of the Review Committee

January 1977

CGIAR PLANNING, EVALUATION, ALLOCATION AND MANAGEMENT

Long Range Planning and Evaluation

Every effort should be made to retain the present informal character of the CGIAR and the activities it supports. These characteristics include: the consultative nature of the CGIAR, membership mainly comprised of donors, the right of each donor to designate how its contribution is to be used, the support of independent research centers and related activities, and minimum bureaucratic structure.

TAC should continue to play a major role in providing the CGIAR with advice about future needs as well as evaluating ongoing activities. TAC's responsibility should include quinquennial reviews, across center analysis of particular topics (stripe analysis), and periodic reassessment of CGIAR priorities.

We also conclude that the CGIAR is a highly dynamic entity. The centers and related activities supported by the CGIAR will continue to mature, national research programs will increase their own capacities and research needs will change. Therefore, the program and procedures of the CGIAR should be reviewed frequently.

Because of the dynamic nature of the CGIAR, we have made specific recommendations only for the next three to five years. Beyond that we present possible criteria to use in making future judgments and recommend a mechanism for periodic evaluation.

The following recommendations provide additional specific mechanisms needed for long range planning and evaluation of the CGIAR.

Recommendation 14: We recommend that the CGIAR review its overall program and operation every three to five years. The CGIAR should appoint an ad hoc committee to conduct a review of the substantive program of the CGIAR as well as review those policies, procedures, and management mechanisms which require attention. TAC should provide a major input into this long term forward look at the substantive program.

Recommendation 15: We recommend continuation of the TAC quinquennial reviews for evaluation of scientific quality, scope, and balance of current programs, and to evaluate future plans, including explicit review of center proposals to continue projects of long standing. We also recommend that the TAC give greater emphasis to periodic, across center analysis of particular topics (stripe analysis) (pp. x, xi).

Evaluation and Long-Range Planning

The CGIAR has relied on TAC for advice on both the future directions of the CGIAR and for evaluation of ongoing activities. To date, TAC has dealt predominantly with proposed initiatives in a sequential fashion, however, always within the context of the priorities as stated in the TAC priorities paper. Evaluation of ongoing programs has begun recently through the initiation of quinquennial reviews. The basic issue is whether these procedures are sufficient to maintain continuing surveillance of future needs and current activities in an integrated fashion within the broader context of food needs.

If the conclusions of this review about the number and size of centers are accepted, then in the future the balance of CGIAR activities will shift more toward maintenance of already approved activities. Thus a mechanism which provides for a periodic overview of the family of CGIAR centers, can identify new needs, monitor gaps and overlaps in CGIAR activities, can establish fiscal requirements and availabilities, and assign priorities within and between programs is very important. Our analysis is that, to date, TAC has done a good job in its assigned tasks and we see no reason why TAC cannot continue to provide similar services to the CGIAR.

It may, however, be appropriate to spell out in more detail the mechanisms TAC might use to maintain an overview of the activities of the CGIAR family in the broader context of food research needs. These mechanisms are: (1) review of proposed initiatives, (2) quinquennial reviews, (3) "strip" analysis, (4) review of indicative plans of centers, (5) periodic priority reviews, (6) continuing interaction with center programs.

TAC should continue to play the major role in reviewing proposed initiatives. These would include completely new proposals that could involve establishing new research activities and reviews of new or large initiatives within existing center programs. All new or large activities being proposed by centers, regardless of the source of funds, should be reviewed by TAC regarding their appropriateness to the center mandate, implications for administration, and implications for future commitment of CGIAR resources.

The quinquennial reviews initiated this past year show much promise. With experience it may be appropriate to sharpen the definition of the purpose of the reviews. The reviews should be concerned with three principal tasks: (1) to evaluate the scientific quality of current programs, (2) to comment on the scope and balance of current programs, and (3) to evaluate future plans including the explicit review of center proposals to continue projects of long standing. Clearly, the onus should be on centers to justify continuance. This latter function of reviewing future plans is particularly important for TAC and the CGIAR. The quinquennial reviews should be planned well in advance, giving the TAC time to establish a high quality review committee which can be briefed well in advance and allow centers time to carefully develop

their long-range future plans. The reviews should be analytic and probing in their treatment of programs, particularly regarding the relative distribution of efforts within center programs. A concise summary of the report should be prepared for the CGIAR. To date, reviews have tended to focus on current programs and generally have recommended more of everything. In addition to these main areas of investigation, common to all centers, specific questions for review could be posed by TAC, the CGIAR, or individual donors.

TAC should continue periodic across-center analysis of particular internal program components such as training, documentation, cropping systems research, etc. These "stripe" analyses would be useful to TAC and the CGIAR in maintaining an overview of the system and also would provide a useful mechanism for centers to compare their different program components and learn from each other. They are termed analyses rather than reviews because we would not like to see them become mechanisms that encourage conformity.

In the next section, a longer term budget cycle is proposed including two-year (biennial) budgets and an additional two-year indicative or perspective program plan. TAC's role would be to review the indicative plans in the context of budget proposals, modify them if necessary after discussion with the centers and recommend to the CGIAR for approval the center's budgetary growth path. Each center would develop its next biennial budget within that plan.

Using the above procedures, TAC in time could be in an excellent position to reassess the program of the CGIAR periodically (every five years) and to recommend priorities for the future.

Finally, TAC needs to have members who are knowledgeable about particular center programs. One possible approach TAC may want to consider would be if subsets of TAC members were specifically responsible for knowing about particular centers. If TAC member A were assigned specific responsibilities for centers 1, 3 and 5; B for centers 1, 2 and 4; etc., then three members of TAC would be particularly familiar with three centers, but no two members would have common responsibilities for more than one center. TAC members could develop this knowledge by attending in-house program development reviews and possibly participating in quinquennial reviews.

The redefinition of TAC's role apparently implies an expanded set of responsibilities. However, TAC is already involved in priorities, quinquennial reviews, stripe analysis, reviews of proposed initiatives, and reviews of center budgets. With effective staff work from more closely coordinated secretariats, we believe the task is manageable.

In addition to reviews undertaken by the TAC, there is need for periodic review of the overall CGIAR program and of the mechanisms and management of the CGIAR by the CGIAR itself. The current approach of constituting a review committee within the CGIAR has merit. A similar review should be conducted within three to five year intervals. The review committee could have the option of commissioning a study team or teams, if it saw the need. TAC's recommendations on future program priorities would be a major input into that review.

Second Review of the CGIAR

Consultative Group on International Agricultural Research

November 1981

Review Procedures

7.29 In the absence of strong centralized management, the System relies heavily on a range of review procedures, not only to monitor the quality of the work but also to test its relevance and to help in the formulation of policy. Valuable contributions to the review process are made by the internal reviews of the Institutions mounted by the Boards of Trustees. Nonetheless the need for independent review was recognized by the Group from the outset in the creation of its Technical Advisory Committee. Although TAC is part of the System, it is independent in the sense that it is not subject to the direct influence of the donors or of the beneficiary countries.

7.30 External reviews have traditionally been of two types: reviews of the Institutions commissioned by TAC, and reviews of the System commissioned by the CGIAR. In addition, some donors conduct their own external reviews.

7.31 As the Institutions have evolved towards more integrated activities, the requirements for external review have changed and are likely to continue to change in the future. These changing requirements were recognized by the 1977 Review Committee in the proposal to establish "Stripe Analyses". It was suggested that these analyses would be primarily for providing information and would be useful "in maintaining an overview of the System and also would provide a useful mechanism for Centres to compare their different programme components and learn from each other". In our opinion, the concept of Stripe Analyses should be extended to include a review of the work of the System on a major commodity or activity. Accordingly, we suggest that the term "Stripe Analysis" should be discontinued and replaced by "Commodity Review" or "Activity Review", as appropriate.

7.32 According to some donors, the greatest deficiency in the review process is the need for more penetrating reviews of the administration and management of the Institutions, particularly in relation to cost-effectiveness and accountability. The questions to be resolved are the extent to which management reviews should be combined with programme reviews, and whether they should be the responsibility of TAC or some other component of the System.

7.33 The requirement to examine management effectiveness has already been built into the terms of reference drawn up by TAC for external review panels. The thoroughness of these management reviews has varied widely, however, and in only one instance has the panel penetrated deeply into administrative procedures. What many donors would like to have included in the review process would be a thorough audit of management, organization and operating procedures in order to give greater "transparency" to the operation of the Institutions.

7.34 We therefore propose that, in addition to external financial audits, review procedures in the System should comprise the following elements:

- (i) Internal Reviews of the Institutions, commissioned by the Boards of Trustees;
- (ii) Management Reviews of the Institutions, commissioned by the CGIAR Secretariat;
- (iii) Commodity and Activity Reviews of the System, commissioned by TAC;
- (iv) External Reviews of the Institutions, commissioned by TAC, and
- (v) Reviews of the System, commissioned by the CGIAR.

7.35 Internal reviews of the Institutions. Internal reviews of the Institutions are conducted annually and are the responsibility of each Director General and Board of Trustees. Although the form of these reviews may vary widely, they afford a valuable means of scrutinizing, on a regular basis, the planning and execution of the programmes on which the success of the System ultimately depends. Consequently, it is essential that they should be conducted in an atmosphere that will allow maximum opportunity for critical analysis and frank discussion.

7.36 Having regard to the need for efficiency in the use of staff time, it is common for a Board's Programme Committee and advisers to participate in the review. We consider that this practice is entirely appropriate for an internal review. For the same reason, there might well be occasions when it would be appropriate for members of TAC and its Secretariat, as well as members of the CGIAR Secretariat to be invited to be present, in order to give them a greater background of knowledge for their own work. The attendance of such individuals might not invariably be appropriate, however, and should always be subject to the invitation of the Institution. Furthermore, it would not be appropriate for donors to be present either as participants in the review or as observers. Their presence would create a different environment for the review and might inhibit mutual criticism by staff members, which can be such a valuable feature of internal reviews.

7.37 Management Reviews. With growing pressures on the availability of funds, the donors have been increasingly concerned that all funds should be used as effectively as possible. Furthermore, as individual donors have contributed progressively larger amounts to the System, questions of accountability have arisen. Although financial audits of the Institutions may be regarded as part of the process of external review, they do not provide an adequate assurance to donors that funds are being used efficiently in relation to the purposes for which they have been allocated. Additional mechanisms are therefore required.

7.38 The Institutions have been able to seek expert advice on financial and budgetary problems through the CGIAR Secretariat, a service that was augmented in 1980 by the appointment of a financial officer to its staff. In our view, the CGIAR Secretariat should be in a position to offer similar help and advice to the Institutions on administrative and management matters. Accordingly, we consider that a senior management specialist should be appointed to the staff of the Secretariat to fulfil this function. The Study Team found considerable support for these ideas among Controllers and senior administrative staff at the Institutions. Advice on administrative matters would normally be by request from the Institution and should be regarded as a consultancy service offered by the Secretariat, rather than as an "Inspector General" function. Nevertheless, in exceptional circumstances, the Secretariat might have to play a more active role in exercising this function.

7.39 We further suggest that future external reviews of Institutions should include a management audit to be commissioned by the CGIAR Secretariat and to be conducted sometimes by the proposed staff member, sometimes by an external consultant and, where necessary, by a combination of both. For an effective management audit, we consider that a minimum period of six weeks would be required, of which the final two weeks would be combined with the normal external review (paragraph 7.46). The findings and recommendations of the management consultant would be discussed by the review panel and incorporated into its report. ✓

7.40 For each review, details of the requirements of the management audit should be worked out jointly by the management specialist, the CGIAR Secretariat and TAC but, in many instances its main functions would be:

- (i) to appraise the organizational structure of the Institution in relation to control and co-ordination at the senior management level; the control exercised by supervisors at successive levels in the management structure; lines of authority and communication; delegation of authority; clarity of duties and responsibilities;
- (ii) to review the suitability of the organizational structure in relation to programme requirements;
- (iii) to review the principal operating procedures and supporting services including financial accounting, budgeting, expenditure control, procurement methods, and contracting; to identify opportunities for simplification or uniformity, the application of mechanical or automatic equipment, where appropriate, and other improvements in operating procedures;
- (iv) to examine the standards of personnel use and to suggest methods for increasing staff productivity, where necessary;
- (v) to review personnel policies and practices as to their adequacy and suitability, including recruit-

ment and promotion standards, the employment of women (see paragraphs 7.114 to 7.115), compensation levels, fringe benefits, retirement systems and work rules; to analyze personnel policies for their effectiveness in maintaining a corps of competent personnel with high morale, and to propose measures for improving personnel management, as necessary; and

- (vi) to recommend or confirm optimum levels of manpower and equipment by programme or function, consistent with programme needs and available resources.

We consider that if more thorough reviews of the management of Institutions were conducted along these lines, it would then not be necessary for donors to mount their own reviews. This would help to relieve the Institutions from the burden of reviews by concentrating the main work into a single period.

7.41 Commodity and activity reviews. Reviews that focus on a single commodity or activity could supplement external reviews of the Institutions in several ways. As we have seen (paragraph 7.31), they would provide opportunities for reviewing, more completely, programmes that have common elements in the work of two or more Institutions. Moreover, they could examine the mechanisms for co-ordinating work in the same region, both administratively and scientifically (see paragraph 6.12). In addition, they could play a significant part in reviewing programme relevance and could provide a better basis for planning the level of support to be accorded to a particular commodity or activity within the System as a whole.

7.42 Some donors consider that external reviews of Institutions should now be as much concerned with the relevance of programmes and their future direction, as with the quality of the work currently in progress. In our opinion, however, to attempt to meet both needs adequately is not always possible. For example, a reasonable assessment of the quality of a breeding programme in pearl millet could be made by any plant breeder with a record of achievement in breeding cross-pollinating annual crops. Assessment of the relevance of a pearl millet programme, however, would require detailed knowledge and experience of that particular crop, its current and future place in the diet of people in the developing countries, as well as knowledge of national development policies, institutional frameworks and research capabilities. With some programmes, the considerations to be taken into account are even more complex and it would be difficult to assemble panels of reasonable size with all the required expertise to assess the relevance of all the programmes of an Institution.

7.43 Consequently, there may well be occasions when it would be desirable to examine the relevance of a programme by means of a commodity or activity review either as an addition to an external review of an Institution, or as an alternative. We consider that commodity and activity reviews could play an important part in reinforcing TAC's assessment of the continuing appropriateness of the mandates of Institutions, leading to recommendations from TAC to the Group for specific changes in mandates and corresponding changes in the levels of financial support.

7.44 External reviews of Institutions. An occasional external review of an Institution is important as an independent check on its effectiveness, and provides information that is essential for planning the work of the System. The Study Team encountered no opposition to the principle of external reviews; only encouragement to find ways of making them more effective, and fears that they already place too heavy a burden, both on those subjected to them and on those doing them.

7.45 External reviews of Institutions at five-yearly intervals were initiated by TAC in response to the recommendations of the Bell Report. They have become widely known in the System as "Quinquennial Reviews" and have come to be regarded as an essential part of the management of the System. Since their initiation, TAC has developed more precise guidelines for conducting them and, although the standard has varied, it is generally agreed that their value has increased. Even if some quinquennial reviews have left something to be desired, the preparation for an external review and the discussion it generates, have often had a significant impact on the operation of an Institution.

7.46 We suggest that quinquennial reviews should concentrate on assessing the continuing suitability of the mandate of an Institution and its effectiveness in terms of the professional ability of its staff, the quality of the work, the suitability of its operational procedures, its linkages with other institutions, its relations with the developing countries and the impact of its work. Future external reviews should incorporate a management audit (see paragraphs 7.38 to 7.40) and should assess the appropriate level of funding in relation to the work undertaken. To the extent that TAC has a continuing role in the analysis of priorities and the annual assessment of programme changes, we do not consider it necessary for external reviews to cover the same ground. Rather, TAC's assessment of priorities and relevance, together with the reports of commodity or activity reviews, should be provided as background inputs to the members of the review panel.

7.47 Owing to the importance we attach to developing collaborative programmes and networks, as well as to forging links with other institutions involved in basic and strategic research, these aspects of the work of the Institutions should continue to be subject to external review. Furthermore, future external reviews should pay particular attention to the arrangements made to foster good working relations between the CGIAR Institutions and government officials in the developing countries. Such reviews should include, when appropriate, the institutional mechanisms involved, as well as operational procedures and the adequacy of methods of communication among all concerned.

7.48 While some flexibility should be permitted in the frequency of external reviews, we consider that the present quinquennial basis should be regarded as the norm. We also consider that, in order not to present the Institutions with an unreasonable burden of reviews, donor agencies should refrain from conducting their own reviews that simply duplicate the agreed mechanisms in the System.

Reviews of the System

7.49 The concept of reviews of the System arose from the Bell Report. They have been arranged by the CGIAR Secretariat acting on the advice and approval of the Group. They are conducted by a Committee appointed by the Chairman of the Group from individuals within the System. The Committee is assisted by a small Study Team of external consultants. The first such review produced its final report in 1977: the report of the present Committee will be submitted to the Group in November 1981 and published in 1982.

7.50 The terms of reference of these reviews have been very wide, raising the question of whether it is possible, in a sufficiently penetrating manner, to undertake all the work required in the time available. With more precise terms of reference, it should not be necessary for future reviews to cover the same ground as that covered by other mechanisms for review. Rather, the findings of other reviews should provide basic information for the Review Committee and Study Team so that they can concentrate on the broad strategy of the System, its resources, organization operational procedures, linkages with other institutions, relations with developing countries and the impact of its work. Future reviews of the System should, like the present one, include regional symposia (paragraph 7.68) as well as extensive visits to developing countries to sample the opinions of senior administrators and scientists. Furthermore, the work of the Review Committee should be phased so as to allow opportunities for interaction with all components of the System during the review process.

7.51 To summarize, this analysis of the requirements for review in the System and how requirements can best be met, suggests that the present mechanisms for review could be strengthened. The guiding principles of reviews should be to avoid duplication of effort, to waste as little of the staff's time as possible, to produce recommendations for maintaining or improving the efficiency of the System and its components; and thereby to give continued confidence to the donors in the effectiveness of the System in fulfilling the purpose of the CGIAR. The mechanisms we propose are largely consistent with those currently in use, but they include several important changes. Our proposals are summarized in Table 7.1.

Table 7.1 External Reviews of the System

Requirement	Mechanism for Review, existing or proposed
(i) Financial accountability of the Institutions	Financial Audits 1
(ii) Administrative efficiency of the Institutions	Management Audits, using inputs from 1 2
(iii) Programme relevance and co-ordination of common programme elements within the System	Commodity and Activity Reviews. . . . 3
(iv) Suitability of mandate)	External Reviews of Institutions using inputs from 2 and 3 4
(v) Scientific quality)	
(vi) Links with other Institu-) tions inside and outside) the System)	
(vii) Relations with developing) countries)	
(viii) Impact of the work)	
(ix) Strategy, organization and operation of the System; its resources, linkages with other institutions, relation with developing countries and impact of the work.	

Appendix 4.0

Center Staff Evaluations of the Review Process*

- 4.1 Analysis of Staff Response to Questionnaire
- 4.2 Staff Perspectives
- 4.3 The Time Cost of Reviews
- 4.4 Questionnaire Design and Response

* This appendix was prepared with the assistance of Keith Fuglie, Research Assistant, Department of Agricultural and Applied Economics, University of Minnesota.

The success of any research system such as CGIAR depends on the effectiveness of the research staff in advancing knowledge and technology. A critical test of any system of research organization and management is its ability to mobilize staff energy and capacity. Systematic external program, management and donor reviews along with internal reviews are important instruments for assessing the performance and directing the energies of the CGIAR Centers.

When I accepted the assignment to conduct a study of the external review process of the CGIAR Centers I insisted that an important element in the assessment should be the eliciting of staff perspectives on the effectiveness of both the external and internal reviews that are conducted by the CGIAR, TAC, individual donors, and individual Centers.

In the spring of 1986 a short questionnaire was transmitted to the Director-Generals of the several centers. (See Section 4.4 for details of the questionnaire design and response.) The questionnaire was distributed to Center staffs by the offices of the Director-Generals. Responses were received during the summer of 1986 and the data were analyzed in the early Fall of 1986.

The results obtained from the analysis of the questionnaires are presented in this Appendix. Section 4.1 contains a detailed analysis of the staff responses. Section 4.2 presents selected staff perspectives on the review process. Section 4.3 represents an attempt to estimate the time cost of the review process. Section 4.4 describes the design of the questionnaire and the method of coding and analysis.

4.1 ANALYSIS OF STAFF RESPONSES TO QUESTIONNAIRES

The questionnaire responses indicate the attitudes of the CGIAR Center staff toward the review process. Four types of reviews are compared: external reviews; other CGIAR/TAC reviews, such as system or Stripe reviews; internal reviews; and donor reviews. External Management and External Program Reviews are treated as one-kind of review, since many respondents used one critique for both reviews (as these reviews are usually conducted at the same time).

Respondents were asked to evaluate whether the reviews have given adequate attention to the issues facing the Center, whether the reviews have (not) been critical in their coverage of these issues, and whether the reviews influenced the institute's activity.

The analysis of the questionnaire data focuses on the following questions:

- (1) Which reviews have had the most affect on the Centers' research direction and design?
- (2) Which reviews have been most attentive to the Centers' various programs?
- (3) Which reviews have been the least or most critical in their analyses of the Centers' programs?
- (4) What are the differences in staff attitudes toward reviews in Centers that have had strong internal review mechanisms and in those that have had weak internal review mechanisms?
- (5) What are the differences in attitudes toward reviews among management, program leaders, and scientific staff members?

4.11 Interpreting the Tables

The tables presented in section 4.12 show the average responses of Center staff members to the questions on their attitudes toward the different kinds of reviews. The topics covered by the reviews were given a value of 1, 2, or 3. A score of 1 meant that too little attention or not enough criticism was given by the review to this topic. A score of 2 meant that the review was "about right" in its attention or criticism. A score of 3 meant a topic received too much attention or too much criticism.

The impact of a review on the Center or institute's activity was rated on a scale of 1 (no impact) to 5 (very much impact).

The standard errors are reported in parentheses below the mean responses for the tables in section 4.12. These give an indication of the variability of staff opinion on the topic. These standard errors have not been corrected by the finite population correction factor so they overestimate the population variance.

The precise significance of the scores is difficult to determine, though the response rate was fairly high. Nevertheless, these results do provide a measure for ranking the reviews.

4.12 Overall Attitudes

Table 4.12A presents the overall attitudes of the respondents toward the reviews. It shows how the respondents rated the reviews on attention to various topics. Table 4.12B shows the ratings of the respondents on how critical the reviews were in coverage of these issues and how the reviews impacted on the institute's activities. The nine issues that are scored correspond to the issues listed under questions 5 and 6 of the questionnaire (see page 40 of this appendix). In Table 4.12B, the tenth issue is listed as question 7.

Some types of review appear to have been more effective at investigating certain issues (see Table 4.12A). Internal reviews were most effective in paying attention to disciplinary research programs (i.e., peer reviews). Their score is 1.88, compared to 1.83, 1.71, and 1.73 for the external, donor, and other CGIAR/TAC reviews, respectively.

Internal reviews, however, have not been so effective in evaluating management or the Board of Trustees. They scored only 1.62 in attention to management and 1.55 in attention to the Board, where as the external reviews scored 1.85 in coverage of management and 1.74 in coverage of the Board.

External reviews also have been the most effective in evaluating training programs and off-campus activities. They scored 1.84 in attention to training programs and 1.82 in attention to outreach activities. Stripe reviews, internal reviews, and donor reviews scored lower on these issues.

Other CGIAR/TAC reviews (e.g., system reviews) have been most effective at evaluating the impact of technologies. Their score is 1.96 for attention to this issue, compared to 1.80 or lower for the other reviews.

External reviews, internal reviews, and donor reviews have all contributed about equally to evaluating the institute's goals and strategies, each scoring 1.87 or 1.88. Other CGIAR/TAC reviews, with a score of 1.76, were rated as least effective.

No striking trends in the standard deviations of scores are apparent. However, there seems to be some tendency for the deviations of the scores for other CGIAR/TAC and donor reviews to be somewhat lower than the deviations of the scores for external and internal reviews. This observation suggests that the opinions of other CGIAR/TAC and donor reviews are somewhat more uniform.

On the question of how critical the reviews have been toward institute programs (Table 4.12B) donor reviews score as most critical (though not too critical) while internal reviews score as least critical. External reviews also score substantially below the donor reviews in level of criticism. The mean scores are 1.85 for donor reviews, 1.77 for other CGIAR/TAC reviews, 1.75 for external reviews, and 1.70 for internal reviews. This result supports the contention of several donors that external and internal reviews have not been critical enough in their analyses. The responses of institute staff members indicate the same evaluation.

External reviews have had the most impact on the institute's activities (Table 4.12B), scoring 3.24, followed by internal reviews (3.08), other CGIAR/TAC reviews (3.00), and, lastly donor reviews (2.88).

Table 4.12A. Attitudes of Institute Staff on the Coverage of Topics by the Review

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Disciplinary research	1.83 (.506)	1.71 (.588)	1.88 (.477)	1.73 (.508)
Applied research	1.85 (.543)	1.79 (.535)	1.83 (.511)	1.85 (.432)
Technology development	1.82 (.490)	1.80 (.616)	1.89 (.533)	1.88 (.458)
Training	1.84 (.526)	1.81 (.491)	1.76 (.543)	1.72 (.566)
Off-campus activities	1.82 (.530)	1.71 (.464)	1.70 (.549)	1.81 (.535)
Technological impact	1.77 (.614)	1.96 (.575)	1.80 (.576)	1.78 (.613)
Goals and strategies	1.88 (.480)	1.76 (.436)	1.87 (.539)	1.88 (.478)
Management	1.85 (.552)	1.67 (.577)	1.62 (.555)	1.71 (.579)
Board of Trustees	1.74 (.541)	1.64 (.497)	1.55 (.524)	1.50 (.513)
MEAN	1.82	1.76	1.77	1.76

A score of 1 means too little attention was given to this topic, a score of 2 means the attention was "about right" and 3 means that too much attention was given to this topic.

The standard errors are given in parentheses.

Table 4.12B. Attitudes of Institute Staff on how Critical the Review was in its Coverage of Topics

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Disciplinary research	1.71 (.526)	1.73 (.647)	1.74 (.540)	1.83 (.468)
Applied research	1.78 (.562)	1.92 (.277)	1.78 (.539)	1.88 (.492)
Technology development	1.77 (.502)	1.71 (.469)	1.74 (.569)	1.88 (.421)
Training	1.76 (.511)	1.55 (.510)	1.72 (.497)	1.77 (.560)
Off-campus activities	1.69 (.563)	1.60 (.507)	1.73 (.492)	2.04 (.437)
Technological impact	1.75 (.586)	1.87 (.516)	1.74 (.530)	1.69 (.535)
Goals and strategies	1.80 (.526)	1.93 (.616)	1.74 (.490)	2.00 (.525)
Management	1.70 (.607)	1.93 (.458)	1.60 (.519)	1.97 (.499)
Board of Trustees	1.71 (.569)	1.69 (.480)	1.55 (.528)	1.63 (.500)
MEAN	1.75	1.77	1.70	1.85

A score of 1 means too little criticism was given to this topic, a score of 2 means the criticism was "about right" and 3 means that too much criticism was given to this topic.

The standard errors are given in parentheses.

Table 4.12C. Impact of The Reviews on the Institute's Activity

Type of Review:	external	other CGIAR/TAC	internal	donor
Level of Impact: (scale is 1 to 5)	3.24	3.00	3.08	2.88

A score of 1 means the review had no impact on the institute's activity, 2 means the review had little impact, 3 means some impact, 4 means much impact, and 5 means very much impact.

4.13 Differences in Attitudes Toward the Reviews Between Institutes With Strong and Weak Internal Review Mechanisms

Some institutes have had strong internal review mechanisms with the active involvement of scientific staff in program and management decisions whereas others institutes have not. It is likely that this difference will have implications for the overall effectiveness of the whole review process.

The strength of the internal review mechanism was based on an analysis of the external review documents, especially the management reviews. Factors such as the level of involvement of center staff in management and policy decisions, the role of social scientists in research planning, the coherence of the research program structure, the use of outside consultants for program evaluation, and the age of the institute were considered when evaluating the strength of the institute's internal review mechanism.

Institutes we regarded as having a strong internal review process (Group I) are CIAT, CIMMYT, CIP, and IRRI. The institutes regarded as having a weak internal review process (Group II) are ICARDA, ICRISAT, IITA, ILCA, ILRAD, and WARDA. The remaining institutes (IBPGR, IFPRI, and ISNAR) are newer and apparently have had little internal review experience as well as being subjected to few donor or other CGIAR/TAC reviews. Thus, only limited information is available on these institutes (external reviews only) and they are grouped separately (Group III).

The comparison of attitudes toward the different reviews between staff members at institutes with strong internal review mechanisms and

those at institutes with weak internal review mechanisms are presented in Tables 4.13A and 4.13B. Because of the similarities of scores within each group the first three issues (disciplinary research, applied research, and technology development) were averaged together under the category "center research."

Strong internal reviews appear to have been an effective mechanism for evaluating most issues. They outscored external reviews and other CGIAR/TAC reviews in their attention to center research programs by 1.89 to 1.81 and 1.70, respectively. Although donor reviews scored 1.92 in this category, it may be because typically they only focus on a single program or project and, thus, are not an effective mechanism for systematic program evaluation.

Strong internal reviews also have been very effective at evaluating technological impact. They and other CGIAR/TAC reviews (e.g., the recent system review) were both given high marks (1.97 and 2.00, respectively) in evaluating technological impact. These scores are noticeably higher than the scores achieved by other reviews on this issue (1.85 for donor reviews and 1.73 for external reviews).

In addition, the strong internal reviews gave significant attention to the institute's goals and strategies. They were scored 1.93 on this issue.

Nevertheless, strong internal reviews were rated as less attentive to the role of management than were external reviews (1.76 to 1.91). Donor and other CGIAR/TAC reviews scored even lower on this issue. External reviews also were rated as best at evaluating the Board of Trustees.

The external reviews for Group I scored high in their attention to training and off-campus activities: 1.95 in attention to training programs and 1.87 in coverage of off-campus activities. These scores are noticeably higher than those given to the other reviews on these topics.

Even strong internal reviews scored low on how critical they have been toward evaluating their own programs and management. The centers with strong internal processes (Group I), nevertheless scored higher on self-criticism than the centers with weak internal reviews (Group II). The mean score on how critical strong internal reviews have been is 1.74, compared to 1.59 for weak internal reviews.

External reviews also have been more critical (though not too critical) in appraising institutes with strong internal reviews than other institutes. The mean "critical" score in Group I for these reviews was 1.81 but only 1.66 in Group II. The external reviews of the Group II institutes have been noticeably less critical than the donor reviews (1.66 versus 1.86).

Strong internal reviews have had a significant impact on institute activities, about equal to that of external reviews (3.36 and 3.34, respectively). Weak internal reviews have had less impact on institute activities (2.75). Donor reviews also have had relatively little impact on the activities of both Group I and Group II institutes (2.86 and 2.89, respectively).

In Group II, nevertheless, the weak internal reviews appear to have been fairly effective at evaluating the institute's own research program (i.e., peer review). Respondents scored 1.82 on this issue, compared with

1.81 for external reviews. But weak internal reviews were seen as quite inadequate at evaluating the institute's management (1.36) or Board (1.32).

Among the Group III institutes (Table 4.13C) the external reviews appear to have been fairly effective at evaluating the center research programs and the institute's goals and strategies but have been somewhat uncritical of management. Furthermore, the external reviews appear to have had quite a bit of impact on these centers. Unfortunately, the lack of data prevents a comparison among the different types of reviews for this group.

Table 4.13A. Attitudes Toward the Reviews at Centers With Strong Internal Review Mechanisms (Group I)

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Attention to:				
Center research	1.81	1.70	1.89	1.92
Training	1.95	1.83	1.87	1.71
Off-campus activities	1.87	1.75	1.75	1.77
Technological impact	1.73	2.00	1.97	1.85
Goals and Strategies	1.87	1.64	1.93	1.90
Management	1.91	1.57	1.76	1.71
Board	1.71	1.50	1.70	1.54
MEAN	1.84	1.71	1.84	1.77
Critical of:				
Center research	1.80	1.74	1.76	1.89
Training	1.89	1.50	1.76	1.68
Off-campus activities	1.80	1.55	1.82	2.00
Technological impact	1.84	1.83	1.80	1.68
Goals and strategies	1.84	1.91	1.80	2.00
Management	1.92	1.80	1.65	1.94
Board	1.60	1.50	1.61	1.70
MEAN	1.81	1.69	1.74	1.84
IMPACT (scale is 1 to 5)	3.34	2.75	3.36	2.86

Table 4.13B. Attitudes Toward the Reviews at Centers With Weak Internal Review Mechanisms (Group II)

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Attention to:				
Center research	1.81	1.94	1.82	1.67
Training	1.78	1.86	1.60	1.73
Off-campus activities	1.72	1.71	1.61	1.90
Technological impact	1.73	1.83	1.56	1.67
Goals and Strategies	1.80	2.00	1.80	1.85
Management	1.79	1.86	1.36	1.67
Board	1.75	2.00	1.32	1.43
MEAN	1.77	1.89	1.58	1.70
Critical of:				
Center research	1.66	2.00	1.71	1.82
Training	1.70	1.80	1.65	1.91
Off-campus activities	1.54	2.00	1.60	2.09
Technological impact	1.65	2.00	1.61	1.69
Goals and strategies	1.68	2.00	1.65	2.00
Management	1.58	2.20	1.48	2.00
Board	1.66	2.00	1.59	1.86
MEAN	1.66	2.00	1.59	1.86
IMPACT (scale is 1 to 5)	2.94	3.40	2.75	2.89

Table 4.13C. Attitudes Toward External Reviews at New Centers

Topic	Type of Review: external only (scale is 1 to 3)	
	Attention to:	Critical of:
Center research	1.95	1.92
Training	1.76	1.72
Off-campus activities	1.90	1.79
Technological impact	1.92	1.77
Goals and Strategies	2.07	1.97
Management	1.91	1.68
Board	1.75	1.69
MEAN	1.89	1.79
IMPACT (scale is 1 to 5)	3.66	

4.14 Differences in Attitudes Toward the Reviews Between Management, Program Leaders and Scientific Staff

Tables 4.14A, 4.14B, and 4.14C present the differences in attitudes toward the reviews among senior management, program leaders, and center-based scientific staff. The attitudes of senior management (i.e., Director Generals and Deputy Director Generals) are reported in Table 4.14A, those of program leaders, in 4.14B, and those of other scientific staff in 4.14C. Only staff based at the center are included in this latter analysis because off-campus staff appear to have been much less involved in the review process.

According to senior management (Table 4.14A), the external reviews with a score of 3.67 have had most impact on center activities. Internal reviews, other CGIAR/TAC reviews, and donor reviews, were scored 3.00, 2.50, and 2.33, respectively, for their respective impacts.

Management responses indicated that external reviews have not paid enough attention to training and to the impact of technologies. External reviews scored 1.29 on attentiveness to training and 1.57 on impact, compared with scores of 2.00 for these two issues on other CGIAR/TAC and internal reviews.

In addition they indicated that the external reviews have been too critical of management but not critical enough of the Board of Trustees (2.38 to 1.63). Interestingly, senior management themselves indicated that internal reviews had been not sufficiently critical of management, scoring this issue at only 1.50.

Donors reviews have given center research relatively weak coverage yet have been very critical of center research, according to senior management. These reviews were scored at only 1.67 on level of attention to center research but were scored at 2.33 for level of criticalness on this topic. Donor reviews also were rated as having the least amount of impact on the center of any review, according to management responses.

Other CGIAR/TAC reviews, such as system or Stripe reviews, were rated as satisfactory by management, receiving scores close to 2.00 on most subjects. But management also rated these reviews as not having had much impact.

Program leaders did not differ much from senior management except in a few areas. They rated donor reviews as having more impact on the institute's activities (3.29) than other CGIAR/TAC reviews but not too different from external reviews (3.34) and internal reviews (3.27).

Unlike senior management, program leaders did not rate external reviews as too critical of management (1.73). They also felt that external reviews have not been critical enough in evaluating the Board of Trustees, though their score was relatively higher (1.71 for program leaders compared to 1.63 for senior management). Program leaders also viewed internal reviews as insufficiently critical of management (1.59) and, especially, of the Board (1.47).

Program leaders rated donor reviews as giving too much attention to issues of technological impact (2.13) and goals and strategies of programs (2.20), but not giving enough attention to training programs (1.60) or off-campus activities (1.71).

For the scientific staff the internal reviews were the most effective type of review for evaluating the center's research program but were not particularly critical of the program. The internal reviews scored at 1.80 on "attentiveness" toward center research, but they scored only 1.67 on criticalness toward center research, below the scores of external (1.70) and donor reviews (1.79).

Scientific staff ranked the external reviews as being the most attentive to training, off-campus activities, goals and strategies, and management. External reviews were also ranked very close to internal reviews in their attention to center research programs (1.79 for external and 1.80 for internal reviews). Both internal and donor reviews scored very low in attention to management and the Board (these scores ranged from 1.56 to 1.60).

Again, the scientific staff rated the donor reviews as the most critical (mean critical score of 1.77), with internal and other CGIAR/TAC reviews the least critical (1.65 and 1.64, respectively). External reviews were ranked between the others, with a mean critical score of 1.73. Internal reviews were rated by the scientific staff as especially uncritical of management and Board.

Table 4.14A. Attitudes of Senior Management Toward the Reviews

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Attention to:				
Center Research	2.00	2.17	2.00	1.67
Training	1.29	2.00	2.00	1.33
Off-campus activities	1.71	2.00	2.00	1.33
Technological impacts	1.57	2.00	2.00	1.67
Goals and strategies	2.14	2.00	2.00	1.67
Management	2.25	2.00	2.00	1.67
Board	1.63	1.50	2.00	2.00
MEAN	1.80	1.95	2.00	1.62
Critical of:				
Center research	1.95	2.00	2.00	2.33
Training	1.71	2.00	2.00	1.50
Off-campus activities	1.71	2.00	2.00	2.00
Technological impact	1.71	2.00	2.00	1.50
Goals and strategies	1.86	2.00	2.00	1.50
Management	2.38	2.00	1.50	1.50
Board	1.63	2.00	2.00	2.00
MEAN	1.71	2.00	1.93	1.76
IMPACT (scale is 1 to 5)	3.67	2.50	3.00	2.33

Table 4.14B. Attitudes of Program Leaders Toward the Reviews

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Attention to:				
Center research	1.81	1.89	1.88	2.00
Training	1.76	2.00	1.81	1.60
Off-campus activities	2.00	2.00	1.73	1.71
Technological impact	1.77	1.67	1.84	2.13
Goals and Strategies	1.70	2.00	1.84	2.20
Management	1.85	1.50	1.68	1.83
Board	1.70	1.33	1.53	1.33
MEAN	1.80	1.77	1.76	1.83
Critical of:				
Center research	1.82	1.89	1.80	1.93
Training	1.89	2.00	1.76	1.67
Off-campus activities	1.87	2.00	1.76	2.00
Technological impact	1.76	1.67	1.75	1.80
Goals and strategies	1.83	2.00	1.74	2.25
Management	1.73	2.00	1.59	2.00
Board	1.71	1.33	1.47	2.00
MEAN	1.80	1.84	1.70	1.95
IMPACT (scale is 1 to 5)	3.34	3.00	3.27	3.29

Table 4.14C. Attitudes of Scientific Staff Toward the Reviews

Topic	Type of Review (scale is 1 to 3)			
	external	other CGIAR/TAC	internal	donor
Attention to:				
Center research	1.79	1.69	1.80	1.75
Training	1.89	1.60	1.70	1.71
Off-campus activities	1.85	1.56	1.70	1.80
Technological impact	1.73	2.25	1.79	1.80
Goals and Strategies	1.91	1.50	1.87	1.85
Management	1.87	1.57	1.56	1.58
Board	1.69	1.83	1.56	1.60
MEAN	1.82	1.71	1.71	1.73
Critical of:				
Center research	1.70	1.64	1.67	1.79
Training	1.73	1.40	1.63	1.62
Off-campus activities	1.70	1.33	1.73	1.91
Technological impact	1.77	1.88	1.69	1.58
Goals and strategies	1.83	1.88	1.71	2.00
Management	1.69	1.71	1.55	1.91
Board	1.68	1.67	1.55	1.56
MEAN	1.73	1.64	1.65	1.77
IMPACT (scale is 1 to 5)	3.29	2.90	2.97	2.33

4.15 Summary and Conclusions

The preceding results suggest that a strong internal review mechanism can fulfill many planning and review functions at CGIAR Centers. External reviews are still necessary for management appraisals and are important for critical evaluations of programs. External reviews are also important for evaluating training programs and off campus activities. A strong internal review mechanism and internal program monitoring process, however, should be the cornerstone of any effective review and planning process.

Institute staff members do not appear to feel that reviews are overly critical. In fact, the reviews (even donor reviews) have been rated as critical enough of most center activities by most institute staff.

Donor reviews have had the least impact on an institute's activities. Strong internal and external reviews, consequently, are the most effective procedures for influencing an institute's program.

4.2 STAFF PERSPECTIVES

Selected comments by staff members of the several centers regarding the review process are presented in this section. These comments are meant to supplement the statistical analysis of the responses to the questionnaire. The comments that were selected seem particularly perceptive or thoughtful. Not all agree with the recommendations. When necessary the comments were edited to avoid identifying specific staff, institutes, or donors.

4.21 General Perspectives

-- CGIAR/TAC reviews are essential and welcome. They are here to make sure that we are and continue to be on track and that our work is relevant. At the same time, the CG members are reassured that their investment in our center is paying off. There was a time (prior to 1985) when there were simply too many reviews. CGIAR/TAC reviews are important and are an integral part of the process. However, donor reviews--especially donor reviews that do not have to do with special projects--are rather pointless.

-- If the system is to stay healthy, some branches will need pruning over the years. The review process should be such as to allow for recommendations that a center, or a major division of a center, be phased out or transferred to national programs.

-- Reviews should concentrate on examining research priorities and resource allocation within and between programs and reconsidering whether the area/environment/crop mandate is being properly addressed or whether it is still sensible and achievable within the resources projected in the near future. It is not possible to review all the scientific detail in the short time usually available.

-- A good review should contain specific objectives and all the parties to the review should be aware of them. I feel there should also be a personal dimension to the review process which allows one-on-one interaction between the reviewer and the staff member being reviewed. Only one out of ten reviews have explicitly provided this type of format.

Most are formal presentations with minimal time allocated for a genuine exchange of ideas.

- Out EMR did not address the issue of board strategy and policy.

- Improvement would lie in the direction of more emphasis on the big ideas (priorities, resource allocations, quality of effort with less attention to detailed study of operation issues. The "X" review was a relative standout but even here I feel there was insufficient attention to the priorities.

- CGIAR/EMR reviews should concentrate on overall center strategies and ways in which the efficiency of the centers as a whole can be improved. CGIAR/EPR reviews should concentrate on the technical strategies of the centers vis a vis their mandate and comparative advantage. Internal reviews should concentrate on the working strategies of the programs within the centers.

- I was generally very impressed with the courteous and inconspicuous way the panels conducted the reviews. However, the importance of the review caused the center to disrupt its normal schedules. For this reason, and also because the consequent actions require time to implement and evaluate, I would not want major reviews of this sort to occur more frequently.

- EPR/EMRs should resist temptation to deal with details. The external review process should deal more with the major issues and future plans of an institute, and how these related to the wishes of the System.

- The major credit for the success of the External Program Review goes to the chairman and members of the review team. The team saw the field

work being done, talked to policy makers in selected developing countries, and observed the interaction between the Board of Trustees and the center staff in one of the annual meetings of the Board and had intensive group and individual discussions with the research staff. The team's approach was critical but constructive. The team members were accessible and showed evidence of an "open" mind. On the whole the review team was excellent and the review was also excellent.

-- The separation of EPRs and EMRs is artificial. Both management and program are inseparable aspects of organizational performance. There should be one review, an EMR as the term "management" incorporates all aspects of an IARC's activities. Such a review should focus exclusively on evaluating whether or not the organization is permeated with the unwavering and determined pursuit of realistic and relevant research objectives. It should cover all organizational aspects (fiscal, personnel, etc.) and all levels of management, including the Board of Trustees.

As a start, a special review should determine how an IARC's top managers including its director general are rewarded with salary increases and continued tenure. On the basis of this review, a management evaluation and reward system based exclusively on the achievement of objectives should be instituted. Thereafter an overall management review should take place every three years to ensure there is a single-minded, disciplined pursuit of the organization's research objectives.

The initial management review and every other management review thereafter, should include an impact study. The impact study would start

with two brief and succinct reports from the IARC being evaluated, one a report listing the IARC's specific research objectives, and the other a list of the specific recommendations the IARC has made to the national research programs of its client countries, the dates these recommendations were made and the means of communication used to convey these recommendations. The impact study would be charged with evaluating the feasibility and relevancy of the IARC's research objectives and with recommending such modifications to these objectives as deemed necessary. In addition, the impact study, by polling and visiting client-research organizations and other collaborators, by examining germ plasm correspondence and records, and by other means, would assess the impact of the IARC's recommendations on national programs.

4.22 Suggestions for Improving the Review Process

-- I have several suggestions: First, keep the teams small, i.e., probably not more than 7 or 8 people. The selection process is key. The success of the review stands or falls with the quality of the chairman/chairwomen. Make sure that the panel members have a chance to get to know the center and its work before they arrive at the center (even if only through publications). Second, external reviews should be scheduled more flexibly, i.e., reviews should coincide with natural phases that any center goes through, instead of scheduling them mechanically every five years or so. This applies especially to EMR. Third, it would be nice if donors could agree amongst themselves that they will all go along with the EPR/EMRs instead of doing their own reviews (this does not apply to special projects).

-- A negative aspect of our review was that there was no participation of scientists on general subjects like the center's goals and strategy.

-- Management reviews must consider how to more effectively involve the trustees in the review process.

-- The review I participated in was very effective and improvements would be difficult.

-- More time should be taken by the review panel to familiarize themselves with research activity of specific programs. They should not limit themselves to annual reports and other publications of the institute. Other publications which are more critical of the institute should be studied, in addition to scientific research publications. This would enable the panel to, perhaps, get a better view of the institute,

both positive and negative. The end result would be a report which, while being more critical would enable the institute to adjust research and development plans as benefiting current needs.

-- The review process should make more use of questionnaires and relevant information supplied by centers. Visits related to the review could then concentrate on points needing clarification and visits to physical facilities that may be necessary. Since program and management of a center are closely related, probably a single panel, with members having diverse experiences and expertise could be used, rather than two independent panels.

-- Combine management and program review into one team but two components.

-- Separate review of scientific activities from policy issues unless teams have a composition that enables them to cover both.

-- Review team should agree on an evaluation framework. We had been preparing for TAC reviews for months and I considered it an anticlimax.

-- Reviewers should be at the top of their profession so they contribute professionally to research expertise of the reviewed staff.

-- I think it would be helpful to all institute staff not to have to cope with both the program and management reviews at the same time. The reviews require that the institute compile a great deal of information and take up a great deal of institute staff time in general. Separating the times of each review would help a great deal.

-- Combine the periodic long-range planning exercise now done in some manner within each IC with that of the present external review panel.

-- Management should let program staff present their views on significant issues that affect the overall direction of the center, rather than trying to railroad the programs or put a taboo on some issues for the purpose of impressing the review committee. The 1986 internal review was a marked improvement because the programs presented their views on the up-stream/down-stream issue. The question is whether the 1986 process represents a permanent change or only a one-time deviation in management's programming of the internal review process. If the latter is the case, "internal" should be eliminated from the review title.

4.23 Conduct of Review Process

-- The review process was viewed by management in a totally defensive way. Staff were not allowed to see the questions posed to the review team and were told not to discuss the reviews with each other. We missed the opportunity for open discussion and debate and to reformulate goals and strategies drawing fully on the considerable expertise available on our own staff. The review process should be a learning and growing experience for all of us--instead it was a traumatic period to live through, save face and hopefully go on later with business as usual.

-- The reviewers should first meet with the administration and heads of divisions and departments. Next professionals and last the senior research staff. There should be a general assembly with all staff to report on results of the review.

-- One of the best review procedures from my point of view is the use of good consultants. They have had much more impact on the direction and quality of our program than the formal reviews.

-- I recommend peer reviews, wherein a reviewer (or a team of reviewers) spends time in the departments, thoroughly studying the programs. In this way he/she can be objective, and can detect obvious areas where change is needed. Reviewers should also discuss matters with junior staff, some of which have interesting and valuable ideas and much experience. They would welcome involvement in such reviews. Naturally, reviewers should not come from within, but should be seconded (or invited) from another institute of excellence. Such persons would have no "axe to grind."

4.24 Internal Reviews

-- I have reached the rather unexpected conclusion that our external review was probably of "lower quality" than the internal reviews but it had a greater impact on the institution. I have always found our internal reviews to be extremely useful and stimulating but major changes (like reorganization of the thrust/department matrix) are not produced by the internal reviews.

-- Annual internal reviews become nothing more than "show and tell." Meaningful and probing questions are to be avoided and it is easy "to pull the wool" over the eyes of the Board of Trustees, many of whom are technically limited.

-- The annual internal review is like a short course about what is happening on the edge of science.

-- The internal review in 1985 was a positive experience; the reviewer was of the highest calibre, the visit was short, and his program was fairly well defined/agreed upon before his arrival. I would find regular reviews (say once a year) of that type helpful.

4.25 Donor Reviews

-- It is better to have an in-depth evaluation done with less frequency, than to have too many evaluations at a superficial level. It is better to have one evaluation done on the behalf of all the donors, rather than all donors evaluating the same organization independently.

-- The duplication of review requests by different donors and, at times, the CG secretariat and TAC makes it very difficult for me to justify this use of the time of key staff. And it falls on the directing staff to a large degree. During 1983/85 a constant series of reviews and studies seriously affected work and tempers of both international and national scientists.

-- The donor reviewed our project for one week in May 1984. It was not an overly satisfying experience, though I guess there are a few lessons to be learned. First, the two members of the review team were, in my opinion, less than well-suited to the task. The chief of mission confessed he knew nothing about agriculture, and while the other team member was a general agronomist, as far as I would tell neither knew anything about farming systems research.

4.26 Other Comments

-- Most of the reviewers are not qualified to make the judgments they are asked to make in the time frame available.

-- We did not see the specific recommendations (only the general recommendations) in the provisional EPR report.

-- There was insufficient perception of the intangibles of close collaboration with client governments and NARS.

-- Finally, the field team felt that three reviews in the first half of 1984 was excessive.

-- For an effective review policy there may be a post-review process to see the progress of implementation of the recommendations.

4.3 THE TIME COST OF REVIEWS

In addition to the monetary costs involved in conducting a review, there is also a substantial cost resulting from diverting scientific and management staff-time away from research and other activities. Survey results are used in this section to illustrate the burden of the review process on institute staff-time.

First, it is necessary to identify the number and type of reviews that an institute is likely to face in a given period of time. Survey results and correspondence with institute administrative officers provide the information.

Five categories of reviews were identified:

- (1) External Program Reviews (EPR).
- (2) External Management Reviews (EMR).
- (3) "Other CGIAR/TAC" reviews, such as system or Stripe reviews.
- (4) Internal Reviews.
- (5) Donor or special project reviews.

Crop or livestock research institutes are reviewed substantially more than the service institutes (ISNAR, IFPRI, and IBPGR). Service institutes are rarely subjected to donor reviews and "other CGIAR/TAC" reviews, and they have not had an annual internal review process. For these institutes, the external program and management reviews have been a major source of planning, though these institutes may be in the process of developing a more formal internal review mechanism.

For a crop or livestock research institute, the review burden is quite substantial. In a typical five year period, one of these institutes

can expect to undergo one EPR, one EMR, two to three "other CGIAR/TAC" reviews, five internal reviews, and from two to ten donor reviews. Although the external and internal reviews involve the entire research and management staff stationed at the center, the "other CGIAR/TAC" and donor reviews usually focus on one program or selected projects within a program.

The time involved for an institute staff person depends upon his or her position and the type of review. Table 4.3A gives the average number of hours spent by staff members preparing for and participating in a review. These are average values reported by the staff members.

To illustrate the time cost of the review process more fully, the average time required from various staff members is calculated in Table 4.3B. In as much as the review burden varies substantially from year to year, the time requirements in a typical "heavy" year, a typical "moderate" year, and a typical "light" year are shown. It is assumed that a donor or "other CGIAR/TAC" review will involve the DG but only the staff of one program, and that an institute has four programs. Thus the time requirements reported in Table 4.3B are divided by four to reflect the average time per program leader or scientific staff member per year (not just those participating).

These figures may overestimate the actual time requirements in that overlap occurs in the preparation for reviews. Time spent preparing for one review may also be applicable to another review. However, these figures do not include the time required for less formal "familiarization" visits by donor representatives and other interested parties which often take the form of a review.

The opportunity cost of the time indicated in Tables 4.3A and B is the value of foregone research and training. The benefits would include a more appropriate research design and direction.

Table 4.3A. Time Spent Preparing for and Participating in Reviews

Staff Members	Type of Review (hours per review)				
	EPR	EMR	other CGIAR/TAC	internal	donor
DG and DDG*	281	250	102	125	25
Program leaders	74	21	37	40	32
Scientific staff	65	16	52	43	39

*Director General or Deputy Director General

Table 4.3B. Time Spent in the Review Process in a Typical Year

A. Heavy Year (external review, internal review, 1 other TAC review, 2 donor reviews)

Staff	Type of Review (hours)				TOTAL	
	EPR/EMR	other CGIAR/TAC	internal	donor	hours	weeks
DG	531	102	125	50	808	20.2
Prog leader	95	9	40	16	160	4.0
Sci staff	81	13	43	20	157	3.9

B. Moderate Year (internal review, 1 other TAC review, 1 donor review)

Staff	Type of Review (hours)				TOTAL	
	EPR/EMR	other CGIAR/TAC	internal	donor	hours	weeks
DG	0	102	125	25	252	6.3
Prog leader	0	9	40	8	57	1.4
Sci staff	0	13	43	10	66	1.7

C. Light Year (internal review, donor review)

Staff	Type of Review (hours)				TOTAL	
	EPR/EMR	other CGIAR/TAC	internal	donor	hours	weeks
DG	0	0	125	25	150	3.8
Prog leader	0	0	40	8	48	1.2
Sci staff	0	0	43	10	53	1.1

4.4 QUESTIONNAIRE DESIGN AND RESPONSE

To obtain the views of scientific staff members toward the reviews, a questionnaire was mailed to the Director Generals (DG) of the CGIAR Centers in April 1986. Copies were then distributed by the DG offices to the institute managements and scientific staffs. Completed questionnaires were mailed directly to the University of Minnesota. Responses received prior to September 1 were coded and analyzed using the SPSS computer package.

Table 4.4A shows the number of completed questionnaires and the number of critiques of reviews that were received from each Center. Of the 330 completed questionnaires, only 292 contained enough information to warrant coding. Those that were rejected were from scientists who had not participated in any review. Response rates tended to be higher at those centers that had most recently gone through an external review.

The major fields of research of the respondents are given in Table 4.4B. Plant breeders and geneticists make up about a fifth of the total and social scientists (mainly agricultural economics) account for about another 16 percent.

Finally, Table 4.4C gives the breakdown of questionnaire responses according to the position of the respondents at the centers. Categories of positions are senior management (Director Generals or Deputy Director Generals), program leaders, scientific staff based at the center, regional or off-campus staff members, and administrative staff.

A copy of the questionnaire and the coding format used to organize the data follows the three tables. The first page of the questionnaire elicits general background information from the respondents. Respondents listed general comments on the reviews on the last page of the questionnaire.

Table 4.4A. Responses to the Questionnaire and the Number of Critiques of Reviews Received

Center	Number of responses a/	Number of critiques of reviews received				
		EPR/EMR	EMR	b/ OTHER CGIAR/TAC	INTERNAL	DONOR
CIAT	24	22	1	0	10	1
CIMMYT	49	48	0	14	3	22
CIP	50	22	5	4	38	1
IBPGR	10	10	0	0	4	1
ICARDA	7	5	3	0	2	0
ICRISAT	48	23	8	6	27	11
IFPRI	17	16	14	1	0	0
IITA	13	7	0	2	9	3
ILCA	21	20	9	1	11	2
ILRAD	12	11	7	1	7	0
IRRI	23	3	0	2	12	4
ISNAR	6	6	0	0	0	0
WARDA	12	6	2	2	4	2
TOTAL	292	166	49	33	127	47

Notes:

a/ The number of scientists who sent in questionnaires.

b/ Scientists often critiqued more than one review. Some filled in separate critiques for the EPR and EMR reviews whereas others used one critique for both the EPR and EMR reviews. The cases in which the critiques were combined are included with the EPR reviews in the "EPR/EMR" column.

Table 4.4B. Major Fields of Study of Respondents

FIELD	NUMBER	PERCENT
Plant breeding/genetics	63	21.6
Social sciences	46	15.8
Plant pathology/entomology	36	12.3
Agronomy	26	8.9
Crop physiology	16	5.5
Soil science	12	4.1
Animal science	11	3.8
Engineering	6	2.1
Other Natural Sciences (chemistry, biology, virology, horticulture, botany, ecology, nematology, immunology, physics)	36	12.3
Others (administration, education, communications, and others)	40	13.7
TOTAL	292	100.0

Table 4.4C. Respondents According to Position at Institute

POSITION	NUMBER	PERCENT
a/ Senior Management	9	3.1
Program Leaders	50	17.1
Scientific Staff (stationed at center)	139	47.6
Regional Staff	73	25.0
Administrative Staff	21	7.2
TOTAL	292	100.0

Note: a/ Includes the Director General and Deputy Director General.

3/8/86

4.41 Questionnaire

Today's Date _____

Name of Your Organization _____

Your Name: _____ Telephone: _____

Your Position: _____

Your Address: _____
_____What is the highest degree you obtained
in school? (check only one at right)

- ☐ 1 High School
☐ 2 1-3 yrs. College or
 Technical School
☐ 3 Bachelor's degree
☐ 4 Master's degree
☐ 5 Doctoral degree

Name of school you last attended and major field of study.

School _____ Major _____

Years of working experience in
your major field of specialization. _____ years*Please indicate the last CGIAR/TAC external program (EPR) and management (EMR)
reviews that you were involved in.

*Please indicate all the other donor and internal reviews that you have been
involved in since January 1, 1985.

Name of Review

For whom was the review conducted
(name of organization)?

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Each of the following pages ask you questions about one of these reviews.

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Columns 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

3/8/86

Please write the name of one of the reviews you listed on page 1 and answer the following questions on this page about this review. *

Name of Review: _____

Date(s) of Review: _____

1. Please indicate the names and positions of review team members for this review. 2. Check which review team members you met with individually or in a small group situation.

Reviewer Name	Position	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. How many hours did you spend preparing for and participating in this review? _____ hours
4. Overall, what percent of this time did you feel was unnecessary? _____ % unnecessary time
5. How much attention did the review team give to each of the following institute program areas?
6. How critical was the report of the review team in each of the following institute program areas?

	(5) <u>Attention</u>				(6) <u>Critical</u>		
	<u>Too Little</u>	<u>About Right</u>	<u>Too Much</u>		<u>Not Enough</u>	<u>About Right</u>	<u>Too Critical</u>
- quality of disciplinary research?	1	2	3		1	2	3
- quality of applied research?	1	2	3		1	2	3
- technology development?	1	2	3		1	2	3
- technology impact?	1	2	3		1	2	3
- training programs?	1	2	3		1	2	3
- outreach activities?	1	2	3		1	2	3
- institute management?	1	2	3		1	2	3
- institute goals and strategies?	1	2	3		1	2	3
- role of institute board?	1	2	3		1	2	3
7. How much impact did the review team visit or report have on the Institute's activity? (circle best number on right)	<u>None</u>	<u>Little</u>	<u>Some</u>		<u>Much</u>	<u>Very Much</u>	
	1	2	3		4	5	
8. Overall, what is your assessment of the quality of the review?	<u>Low</u>		<u>Medium</u>			<u>High</u>	
	1	2	3		4	5	

* This page is to be filled out for each review identified on the previous page.

3/8/86

CONCLUSION

1. Looking back over the past five years, to what extent has the review process gotten better or worse?
- | | <u>Much
Worse</u> | <u>Somewhat
Worse</u> | <u>Remained
the same</u> | <u>Somewhat
Better</u> | <u>Much
Better</u> |
|--|-----------------------|---------------------------|------------------------------|----------------------------|------------------------|
|--|-----------------------|---------------------------|------------------------------|----------------------------|------------------------|

(a) CGIAR/TAC Reviews	1	2	3	4	5
(b) Donor Reviews	1	2	3	4	5
(c) Internal Reviews	1	2	3	4	5

2. Specifically, please list the major positive and negative aspects about the review process.

<u>Negative Aspects</u>	<u>Positive Aspects</u>

3. Please list the specific suggestions you have on how the review process might be improved.

THANK YOU VERY MUCH FOR COMPLETING THIS SURVEY.

4.42 Coding Information

QUESTIONNAIRE CODING FORMAT

Variable	Description	Code	Column

ID	Respondee Number	1-300	3
INST	Institute	1=CIAT 2=CIMMYT 3=CIP 4=IBPGR 5=ICARDA 6=ICRISAT 7=IFPRI 8=IITA 9=ILCA 10=ILRAD 11=IRRI 12=ISNAR 13=WARDA	2
POS	Position	1=management 2=program leader 3=scientific staff 4=administrative staff 5=off-center staff	1
EDUC	Education	1=high school 2=1 to 3 years college or tech school 3=bachelor's degree 4=masters 5=Ph.D.	1
FIELD	Major field of study	1=(ag) education 2=plant breeding/genetics 21=animal science 22=zoology 23=library science 24=math 25=geography 26=communications 27=political science 28=public health 29=veterinary science 30=immunology 31=ag engineering 32=physics 33=photo chemistry	2
		3=agronomy 4=horticulture 5=crop physiology 6=(ag) economics/rural devel 7=soil science 8=accounting 9=microbiology 10=statistics 11=chemical engineering 12=plant pathology/entomology 13=biology 14=chemistry	

FIELD	34=MBA 35=ag extension 36=nematology 37=general ag science 38=plant ecology	15=general administration 16=virology 17=anthropology 18=computer science 19=botany 20=xxx	
EXP1	Years of experience in major field	1-40	2
EXP2	Experience in CGIAR system	1=experienced (3+ years) 0=new to CGIAR	2
TREND1	Have CGIAR/TAC reviews gotten better or worse?	1=much worse 2=somewhat worse 3=remained the same 4=somewhat better 5=much better	1
TREND2	Have donor reviews gotten better or worse?	"	1
TREND3	Have internal reviews gotten better or worse?	"	1

Negative Aspects of Reviews

(Code: 1=respondee listed this aspect, 0=did not list this aspect)

NT1	Panel selection: some fields unrepresented, incompetent members, lack of diversity in group	1
NT2	Panel selection: unfamiliar with IARC, CGIAR, or geographic setting of research	1
NT3	Panel selection: members bring along own biases, not open-minded	1
NT4	Panels too large	1
NF1	Review too short: superficial discussions on research program	1
NF2	Not enough informal discussion between panel and scientists	1

NF3	Panels have unknown (or "hidden") agendas	1
NF4	Reviews are poorly focused/too broad	1
NF5	Not enough participation in review by lower staff echelons	1
		5X
NR1	Too many reviews, preparing/participating takes too much time	1
NR2	Reviews have limited impact: recommendations are too general, no follow-through mechanism, centers react negatively to criticisms	1
NR3	Honest discussion is inhibited, presentations controlled by management, center emphasizes appearance over substance	1
NR4	Panels are too pro-management, by-pass management deficiencies	1
NR5	Off-center programs are inadequately covered	1
NR6	Center program achievements inadequately measured (under estimated)	1
NR7	Reviews emphasize quick payoff research, don't give enough value to long-term research	1
NR8	Donor reviews interfere with program	1
NR9	Lack of continuity between reviews, no monitoring between reviews	1
NR10	xxx	1
NR11	Reviews not critical enough	1
NR12	Reviews too critical	1
NR13	Scientists not involved in strategic planning discussions	1
NR14	Panels give bad or misinformed recommendations, center programs misrepresented in reports	1
NR15	Lack of full Board participation in review	1
		5X

NI1	Internal reviews: too frequent and take too much time	1
NI2	Internal reviews: discussions not frank, criticisms not constructive	1
NI3	Internal reviews: neglect long-term research, outreach, and/or training programs	1
NI4	Internal reviews: too broad, insufficient depth	1
NI5	Internal reviews: internal/external review held concurrently interferes with quality of review	1
		2X

Positive Aspects of Reviews

(Code: 1=respondent listed this aspect, 0=did not list this aspect)

P1	Reviews focus and improve program (eg peer review) --receive constructive criticisms, force scientists to justify their research, identifies problems, tool to effect program changes	1
P2	Reviews promote strategic/long-term planning and thinking	1
P3	Reviews measure impact and progress of research	1
P4	Reviews facilitate research collaboration and teamwork, scientists learn about other programs, helps build a consensus	1
P5	Reviews improve organization and structure of program	1
P6	Reviews improve management style and policies, chance to air staff concerns, make management more open, force management to confront neglected issues	1
P7	Increases outside (eg donor) awareness and confidence in institute	1
P8	Promotes linkages and cooperation between center and outreach staff/programs	1
P9	Involves NARP representatives in IARC planning process	1

P10	Increase awareness and cooperation between IARCs	1
P11	Some panel members are highly competent	1
P12	Good diversity in panel membership	1
		3X

Major Suggestions for Reviews

(Code: 1=respondee listed this suggestion, 0=did not list)

S1	<u>Improve panel</u> --more preparation of panel, more knowledge of CGIAR system and region, more open-minded, from outside of 'old-boy' network	1
S2	<u>More indepth study</u> --more interaction with staff and in smaller groups, less formality, more attention to off-center activities, more input from NARPs	1
S3	Use outside experts/consultants for peer reviews	1
S4	Reduce frequency and number of reviews (especially donor reviews)	1
S5	Conduct fewer internal reviews --every 2 to 3 years instead of annually	1
S6	Improve feedback mechanism to get review results to staff and program, recommendations should be within institute means, more continuity between reviews	1
S7	<u>Reviews should concentrate on strategic issues</u> , timing should coincide with life of institute, should prioritize research programs	1
S8	<u>Reviews should be more focused</u> , should select a few issues for in-depth analysis, objectives and terms of reference should be made clear, use more stripe reviews	1

Critique of Specific Reviews

(this section is repeated five times, once for each type of review) 3X

REVIEW(A..E)	Type of review	1=EPR (or EPR/EMR) 2=EMR 3=other CGIAR review 4=internal review 5=special project (donor) review	1
MEMBERS(A..E)	Number of review panel members	1-99 (not applic to internal rev)	2
MEETING(A..E)	Number of panel members respondee had indiv or small grp meetings with	0-99	2
TIME(A..E)	Number of hours respondee spent in prep/partic in review	0-999	3
UNNEC "	% of TIME respondee felt was unnecessary	0-100	3
IMPACT "	Impact of the review	1=none 2=little 3=some 4=much 5=very much	1
SATIS "	Satisfaction with review	1=none 2=little 3=some 4=much 5=very much	1
ATT1 "	Attention of review to quality of disciplinary research	1=too little 2=about right 3=too much	4X 1
ATT2 "	Attention to quality of applied research	"	1
ATT3 "	Attention to technology development	"	1
ATT4 "	Attention to technology impact	"	1

ATT5	"	Attention to training programs	"	1
ATT6	"	Attention to outreach programs	"	1
ATT7	"	Attention to institute management	"	1
ATT8	"	Attention to institute's goals and strategies	"	1
ATT9	"	Attention to role of institute board	"	1
				1X
CRIT1	"	How critical was review toward quality of disciplinary research?	1=not critical enough 2=about right 3=too critical	1
CRIT2	"	How critical toward quality of applied research?	"	1
CRIT3	"	How critical toward technology development?	"	1
CRIT4	"	How critical toward technology impact?	"	1
CRIT5	"	How critical toward training programs?	"	1
CRIT6	"	How critical toward outreach programs?	"	1
CRIT7	"	How critical toward institute management?	"	1
CRIT8	"	How critical toward goals and strategies	"	1
CRIT9	"	How critical toward role of institute's board	"	1
				1X

Appendix 4.0

Appendix 5.0

ANALYSIS OF EXTERNAL AND STRIPE REVIEW REPORTS*

Outline

- 5.1 Comparative Analysis of Review Reports
- 5.2 The CIAT Reviews
- 5.3 The CIMMYT Reviews
- 5.4 The CIP Reviews
- 5.5 The IBPGR Reviews
- 5.6 The ICARDA Reviews
- 5.7 The ICRISAT Reviews
- 5.8 The IFPRI Reviews
- 5.9 The IITA Reviews
- 5.10 The ILCA Reviews
- 5.11 The ILRAD Reviews
- 5.12 The IRRI Reviews
- 5.13 The ISNAR Reviews
- 5.14 The WARDA Reviews
- 5.15 Stripe Review of Farming Systems Research
- 5.16 Stripe Review of Off-Center Activities
- 5.17 Stripe Review of Training

*This appendix was prepared with the assistance of Keith Fuglie, Research Assistant, Department of Agricultural and Applied Economics, University of Minnesota.

Introduction

The permanent record of the External Review Process at the CGIAR Centers is incorporated in the reports of the EPR, EMR, and special review teams. These published reports clearly are no more than a distillation of the findings and evaluations of the review teams. The oral presentations by the teams often provided much richer insights into the strengths and/or limitations of Center policies and programs than did the written reports. For the staff members of donor organizations, however, the review reports are often the primary source of information and must be analyzed as such.

As part of the study of the review process I conducted a content analysis of the review reports. One objective of the content analysis was to determine what information about program strengths and limitations might be obtained from a study of the review documents by a staff member of a donor agency. Another was to compare the reports for individual centers over time and to compare the reports of the several centers with each other.

In interpreting the review reports I also drew on other published documents, such as Center annual reports, long-range plans, and available system reviews. Although it somewhat contradicts the spirit of the content analysis, I also used the insights of staff surveys (see Appendix 4.0) in order to "read between the lines" of the review reports.¹ The

¹For an introduction to the literature on the methodology of content analysis see the following books:

- (a) Content Analysis: An Introduction to its Methodology. Klauss Krippendorff. Beverly Hills, CA: Sage Publications, 1980.
- (b) Content Analysis for the Social Sciences and Humanities. O. R. Holstri. Reading, MA: Addison-Wesley Publishers, 1969.

initial drafts of the sections on the individual institutes were sent to the Center Directors for their comments, and reactions were received from all but two Centers (ICARDA and WARDA). I took these reactions and suggestions under consideration when I wrote the final version of this appendix.

In order to impose some structure on the content analysis the findings are presented under nine general headings:

- (a) panel membership;
- (b) panel itineraries;
- (c) impact of reviews;
- (d) criticisms in reviews;
- (e) staff concerns expressed in reviews;
- (f) research organization;
- (g) planning processes;
- (h) relations with national research systems; and
- (i) relations with other institutions.

The first section of this appendix (5.1) summarizes and compares the results of the EPR, EMR, and Stripe reviews. The next several sections (5.2 to 5.14) deal with the reviews of individual institutes. The last three sections (5.15 to 5.17) present material from the Stripe reviews.

Had I had just wanted to summarize the findings of reviews I simply would have reprinted the executive summaries. That, I felt, would have violated my responsibility. My objective was to assess what can be learned from the review reports that is relevant to the functioning and performance of individual centers and the CGIAR system.

5.1 COMPARATIVE ANALYSIS OF THE REVIEW REPORTS

There are summarized in this section the findings of the content analysis of the external review reports of the thirteen IARCs and the Stripe reviews conducted by the CGIAR system. References to the Stripe reviews are made in discussing the impact of the reviews on Center programs.²

(a) Panel Membership

Membership of the review panels appears to be quite well balanced among the representatives of developed and developing countries and academic disciplines. Panels almost always include representatives of developed countries and developing countries. Often, but not always, the panels include members of National Agricultural Research Programs (NARPs) from the country in which the institute under review is based. The disciplines of the panel members generally span the areas covered by Center research activities; however, several respondents to the questionnaire (i.e., scientists at the institutes) complained that their discipline was not unrepresented in the review of their Center. This criticism apparently reflects a perception that the external review is primarily a peer review rather than a strategic planning review. There were also concerns expressed about the adequacy of panel members knowledge about or experience with the CGIAR system. The data available to us on the panel

²Some abbreviations used in this and following sections are as follows.

EPR = External Program Review; EMR = External Management Review;
NARP = National Agricultural Research Program;
DG = Director General; DDG = Deputy Director General.

members' previous experience or association with the CGIAR system, however, are incomplete.

(b) Panel Itineraries

In addition to visiting the institute's off-station activities and meeting with NARP representatives, each panel held extensive meetings with Center staff members and management. Usually, meetings were scheduled with Board members as well. Panels often split into two or three subgroups to visit off-station activities.

The panels almost always prepared drafts of their reports at the Centers and presented them to Center managements and/or Boards before leaving. Scientific staff members sometimes were not present at these presentations.

One common complaint of the respondents to the questionnaire was that the panels did not spend an adequate amount of time in small-group discussions with the scientific staff. During some reviews, interactions between panel and staff members were restricted to presentations before large groups; and little informal discussion was possible. During some of the more recent reviews the panels or panel chairpersons attended the institutes' annual internal review sessions before embarking on their own scheduled activities. This participation familiarized the panels with staff members and programs.

The scheduled activities of the more thorough reviews consisted of two parts. In the first, the panel members familiarized themselves with the Centers, reviewed the impact of past research, and identified the strategic issues facing the Centers in the coming decade. During the

second part of the review the panel members focused on the strategic research issues facing the Centers. They formulated research strategies and interacted closely with Center staffs and management. Judging from the review documents and staff comments, an ideal review might involve a sequence of nine steps.

Part 1:

- (1) Review background briefing papers and attend orientation sessions with CGIAR or TAC Secretariates (begins before panel arrives at Center).
- (2) Hold initial meetings with Center management and subsequent meetings with Center Board and program leaders.
- (3) Attend internal review to get to know staff members and become familiar with programs.
- (4) Visit selected off-Center activities and NARPs.

Part 2:

- (5) Hold meetings with Center staff, including small-group sessions with research staff members.
- (6) Prepare draft of report.
- (7) Conduct additional staff sessions (to get reactions to draft).
- (8) Make oral presentation of findings to Center staff management and Board.
- (9) Prepare final report including recommendations for monitoring implementation of review recommendations.

(c) Impact of Reviews

Centers have responded to recommendations in the reviews in various ways. Usually, the Centers make a serious attempt to consider and, if appropriate to implement program recommendations although they are at times constrained by financial considerations.

In some cases recommendations have not been adopted. For example, IRRI did not change its off-Center personnel policy, despite recommendations to do so in both the first and second external reviews. The failure to adopt recommendations does not imply, however, that they were not considered. For example, the first external review of CIAT recommended that the Center develop a veterinary research program. This was considered by CIAT management but rejected in favor of expanding its forage research program. In another case, the first review of CIMMYT recommended that CIMMYT concentrate on breeding programs at the expense of adaptive research. CIMMYT decided instead to expand its on-farm trials program in order to get more data on farm-level yield constraints. In both these cases, the second external reviews concurred with the Centers' decisions. Occasionally, some institutes have defensive reactions to some review recommendations; ICRISAT, for example, did not feel that the criticisms of its research program structure in a review were justified.

In some cases, recommendations have been rapidly adopted. The first review of CIP recommended that better quarantine procedures be developed before cross-country plant material transfers were continued. CIP devoted significant research resources to this issue in order to develop safe procedures. When the review of ICARDA found the training program to be deficient, ICARDA agreed with this finding and took steps to increase its commitment to training.

External reviews seem to be most effective at identifying the more obvious program and management deficiencies. The criticisms seem to carry more weight than do the internal criticisms, especially those concerned

with management issues. Centers often respond, for example, to suggested changes or modifications in organizational structure. However, examples of such suggestions having major impact on research program content are rare (the first review of ILCA may be an exception).

An external review sometimes has served as a third party to evaluate an issue involving two or more institutes (e.g., the CIAT-IITA dispute over cassava research) or between an institute and TAC. For example, the second review of IBPGR recommended that the relation between IBPGR and FAO be reevaluated. In addition, the first review of ILRAD supported the institute's request for funds for the acquisition of a livestock ranch.

It is difficult to evaluate the impact of a review on a program because (1) in many cases it is likely that institutes themselves would have adopted a recommended line of research with or without the review report and (2) the nature of many recommendations makes evaluation of impact open to arbitrary judgement (i.e., if recommendations used words like "strengthen" or "increase" in reference to a particular program or policy).

Review recommendations on program are almost always "positive" in that they suggest adding a particular line of research to existing efforts. Rarely has any panel recommended the curtailment or elimination of research program except in cases where the activity appears to be stretching the institute's mandate (e.g., IITA's involvement with "development" projects). There are some examples of review teams having recommended priorities for a research program (e.g., Second EPR or IRRI) but there is

little evidence that the rankings have been adopted by the Board or management.

Of the three Stripe reviews carried out in the CGIAR, the first two apparently had very little impact on Center activities. The main value of the reviews was descriptive in that they provided a broad overview of the topic at hand. They were not critical of programs at any individual Center and their recommendations were very general, but they may have served to initiate further discussion on the issue among IARC scientists (e.g., the Farming Systems Research Review).

It is too early to judge the impact of the third Stripe review. This review on training was much more extensive. It addressed an issue of global concern (i.e., human resource needs in agricultural research programs in developing countries) and then considered the role of the IARCs in meeting this need. Many of its recommendations were quite specific. The cost of this study was several times higher than the previous Stripe review (on off-Center activities).

(d) Criticisms in Review Reports

A few trends appear to have developed in the contents of the review reports. Three main trends have shown up in the analysis.

(1) The first round of the external reviews tend to be less critical than the second round of reviews. This apparent difference seems to arise from several factors: (a) Early in an institute's life noticeable research progress is very rapid; (b) the development of new technology and the impact of the new technology emerge more slowly than advances in scientific knowledge; and (c) review teams usually exhibit strong sympathy

for the objectives of an institute's research program; they want the institute to succeed.

In the second round of reviews the teams tend to be more frank in their critiques. Although they still show the same sympathy for program objectives (evidenced by the high praise for successful efforts), more emphasis is placed on results and impact. The inclusion of management reviews probably has also added to greater frankness in the review reports because the EMRs tend to be more direct in their criticisms.

(2) Reviews of highly regarded institutes tend to be more forward looking and to place less emphasis on the evaluation of past or current research. Reviews of newer institutes or of institutes whose reputations are not yet well established, however, place more emphasis on evaluating the quality of on-going research.

(3) Review teams show some tendency to bypass criticisms and to move directly to recommendations for program or policy changes. Direct criticisms of individuals or programs are often softened (or only vaguely referred to); the nature of the recommendations, however, may imply strong criticism of existing programs (e.g., IITA-CIAT cassava dispute, IITA labor relations, and the general research program at the first ILCA review). Sometimes it takes several readings to ascertain the nature of the criticisms, which may be passed over at first glance.

(e) Eliciting Staff Concerns in Review Reports

The review panels seemed able to elicit major staff concerns and to judge staff morale effectively. In cases where major problems were identified, concrete recommendations usually were made.

The participation of staff members in management decisions seemed to be an important factor determining staff morale. It is interesting to note that the Centers characterized as having strong leadership at the DG level (e.g., CIP and CIAT) also had participatory forms of management. But authoritarian leadership styles did not always translate into poor staff morale. There is some indication, nevertheless, that review teams felt authoritarian management did have an adverse effect on overall program performance.

One staff problem faced by several institutes relates to policies toward off-Center staff. When these staff members were funded only through short term contract funds, the effect on morale was usually negative because of the isolation and insecure career prospects. This problem was lessened in institutes that funded its off-Center staff through core funds (e.g., CIP).

Finally, some institutes established discriminatory salary scales between international and regional staff members (i.e., ICRISAT and ICARDA). This practice was a potential source of friction among staff members and another source of morale problems. On the other hand, CIAT employed an innovative non-hierarchical personnel structure for its scientific staff that was quite popular and contributed toward staff cohesion.

A frequent concern expressed by staff members was the lack of opportunities at the Centers for career development. Occasionally, recommendations were made to lengthen contracts or to create more

personnel grades. The external reviews were sensitive to the need to maintain flexibility in staff composition.

The reviews also took some interest in the concerns of lower level and support staff members.

(f) Commodity Research Organizational Structure

The organization of research within an institute in the CGIAR system is quite diverse. Determining factors are the number and nature of the crops being investigated, the heterogeneity of the environment in which these crops are grown, the presence of a farming systems program, and the age of the institute.

Single commodity institutes seem to have developed greater focus in their research structure. CIP and IRRI are two such institutes. They structure their programs around a series of identified "problem areas" by forming multidisciplinary teams of scientists to investigate each area. The development of biological technologies is the key component of the research strategy. IRRI, however, places an increasingly greater emphasis on the development of informational technologies (i.e., soil, water, and crop management, cropping systems, climatic environmental characterization, and "constraints" research). The development of mechanical technologies is only a small part of the research program at any IARC. The following table lists the research "thrusts" at IRRI and CIP and categorizes them according to the type of technology they encompass.

Note that a greater number of "thrusts" is devoted to informational technology development at IRRI whereas CIP places more emphasis on biological technology development.

Table 5.11: A Comparison of the Research Organizations at CIP and IRRI

Type of Technology	IRRI (rice)	CIP (potatoes)

Biological		
-genetic resources	1. Evaluation and utilization	1. Collection, maintenance and utilization 2. Seed production and distribution 3. Seed production technology
-pest control	2. Control and management of pests	4. Control of bacterial and fungal diseases 5. Control of virus diseases 6. Integrated pest management

Informational		
	3. Irrigation water management 4. Cropping systems 5. Climatic environmental characterization 6. Soil and crop management 7. Constraints and consequences research	7. Warm climate production 8. Cool climate production 9. Food systems research

Mechanical	8. Machinery development and testing	10. Postharvest technology

The multicommodity institutes usually organize their research activities around crop "programs" and then try to link them with a farming systems research program. In practice, however, such linkages have often been difficult to establish and the farming system research activities are usually carried out separately from the commodity research programs. The result seems to be a series of "mini-institutes" within the Center. This type of organization has characterized IITA and ICRISAT.

An alternative multicommodity structure has been used at CIAT. CIAT does not have a separate farming system research component but, instead forms teams from a number of disciplines under each commodity program. CIAT also integrates economic research within its commodity research programs, apparently quite effectively. Thus multidisciplinary approaches to research on a single commodity are promoted. However, there does not appear to be deliberate structural linkages across commodities. Some review reports suggest that specialized disciplinary units should be established for some cross-commodity problems to avoid unnecessary duplication of expensive research facilities (e.g., for future research on tissue culture at CIAT). Some such units have been established.

In the review reports, commodity programs generally fared better than farming system programs in terms of effectiveness, focus, and organization.

Two service institutes (ISNAR and IBPGR) lacked a well defined formal structure, and authority and management responsibilities were reported to be too centralized around the DG. The management reviews presented

alternative organizational structures to decentralize management activities.

(g) Research Planning Processes

A wide range of research planning mechanisms has been employed by the IARCs. The more mature institutes (CIP, IRRI, CIAT, and CIMMYT) appear to have strong internal planning mechanisms in place. The Board of Trustees and the social sciences have played quite strong roles in the planning process. CIP seems to have involved representatives of National Agricultural Research Programs in its planning activities more effectively than other institutes through its use of Regional Planning Conferences.

Planning Conferences

The trend at these mature institutes is to place more program emphasis on basic research and to leave technology development to the NARPs. This tendency is evident in the long-range plans of these institutes and it has been encouraged by the reviews. In the case of CIP, however, continued reliance on contract research is envisioned to meet basic research needs.

The role of the social sciences in the planning process has been slow to evolve and is explicit only in the more mature institutes. It is most evident at IRRI though its "Constraints and Consequences" research focus. When used, social science research appears to be a very effective means of influencing the direction of an institute's research program. A good example is the long-range planning report of CIAT. It utilized the production and nutrition studies conducted by the social science staff helped clarify CIAT's research priorities.

The role of the Board of Trustees has varied considerably among institutes. Some Boards, with active program committees have played a strong and constructive role in research policy and program development. At most Centers, Board members participate in the internal review sessions. Boards have, however, not always found it easy to distinguish between their own responsibilities for Center policy and program direction and managements responsibility for program implementation and operation.

In the life of an institute the role of the Board appears to be constantly evolving. Initially, the main task is the selection of the DG who then is given a great deal of freedom in getting the institute established. As the institute matures, the participation of the Board in research policy increases. The recent financial stringencies faced by most institutes has been another factor leading to greater involvement of the Board in strategic planning. Several second external review reports have advocated a greater role for the Board. In a few cases there have been periods of detrimental and long-standing friction between the DGs and Boards.

Some institutes (ILCA, ILRAD, IITA, WARDA, and ICRISAT) did not appear, from the review documents, to have very effective long-range planning or research evaluation mechanisms. In some of these cases (e.g., ICRISAT) questionnaire responses confirmed a dissatisfaction with the internal review process. The usual criticism is that internal reviews are too superficial or have had limited influence on program direction.

(h) Relations with National Programs

Perhaps the principal mode of nurturing relations with NARPs is a Center's training program. Over time, the Center builds up a cadre of scientists in the NARPs who are familiar with and usually sympathetic to the Center. These relationships between Center and NARP scientists often form the basis for future collaborative research with the NARPs. Most Centers also post regional staff to facilitate relations with NARPs. At least one Center also has relied on Board members to help establish relations with NARPs (e.g., ICARDA).

Collaborative projects usually focus on varietal testing and adaption. But some Centers also move toward collaborative projects in crop management and farming systems research. Center staff are often assigned directly to the NARPs in these cases.

Centers employ NARP representatives in planning on-station programs to varying degrees. According to the reviews, CIP is at one end of the continuum; it uses regional planning conferences with NARP, CIP, and other invited participants to plan and coordinate CIP and NARP research programs. At the other extreme are ICRISAT, which was criticized for not involving NARP representatives in program planning, and IITA, where involvement in development projects was criticized for displacing NARP activities. Some centers had intern programs employing NARP members for a one-year period (e.g., IBPGR).

(il) Interactions Among IARCs

Reviews spent a fair amount of time investigating relationships among IARCs. In most cases the reviews seemed able to identify problems and to provide recommendations for their resolution.

The record of relations among IARCs is mixed. In several cases, cooperation was deemed inadequate by the reviews. In some instances, it appears that "turf battles" may have prevented resolution (e.g., IITA-CIAT on cassava, CIMMYT-ICARDA on barley, and CIMMYT-IITA on maize). The increased financial competition among IARCs may be a contributing factor in the cases of limited cooperation. However, in most instances the record of cooperation appears to be quite good.

In some external reviews, the recommendations delineating responsibilities between institutes went unheeded. For example, the second external review of IITA recommended that its mandate be extended to include sweet potatoes. Instead, responsibility for sweet potatoes went to CIP although its second review had made no mention of sweet potato research.

(i2) Involvement with the Private Sector

This topic is almost absent in the reviews. Among the few references to cooperation with the private sector were a IRRI's program of machinery development, ICRISAT on seed distribution, and CIAT on seed industry development (CIAT's involvement with the private sector in this area was not mentioned by the reviews but was indicated in CIAT's long-range planning document). In no case has there been a representative from the private sector on a review panel, nor did I find any mention of collaboration on research with the private sector.

(i3) Other Interactions

CIP has been aggressive in its use of contract research with research institutions in developed countries. ILRAD engages in collaborative

research with other advanced institutes, as does IBPGR, although to a lesser degree (it currently has no research facilities of its own). Other institutes use collaborative research on an ad hoc basis for very specific tasks (e.g., IRRI). ICARDA plans to seek relations with southern European research institutions that are located in similar climatic zones. CIAT initially planned to rely on basic research institutions in developed countries for research on emerging biotechnologies, but it has recently begun to acquire internal capabilities in this field. CIMMYT is involved in significant germplasm exchanges with some North American institutions. Other institutes, however, claim to have had difficulty generating interest in their research programs (e.g., ICRISAT) among developed country institutions.

Some institutes also collaborate in training programs with universities in developed countries (e.g., IRRI, IBPGR) by providing facilities for the research components of advanced degrees or supporting curriculum development.

Another major area of interaction is with United Nations organizations. IBPGR has been located within FAO, but this association was identified as a significant structural problem in the second external review. ILRAD reportedly coordinates its livestock research with FAO and WHO. In addition, some evidence of competition and overlap between FAO and ISNAR was noted in the review of ISNAR.

5.2 THE CIAT REVIEWS

Reviews: First EPR, 1977
 Second EPR, 1984
 EMR, 1984

(a) Panel Membership

First EPR: 11 members

UK (2)	NARP
Australia (2)	NARP, academia
Columbia	
Mexico	academia
US	academia
W Germany	academia
CGIAR/TAC (3)	

Second EPR: 11 members

US (3)	academia, USDA, State Dept.
UK	
France	NARP
Brazil	NARP
Mexico	NARP
Australia	NARP
Argentina	NARP
CGIAR/TAC (2)	

EMR: 3 members

(b) Panel Itinerary

First EPR (1977)

Apr 12-15: visits to NARP and field activities in Brazil and Guatemala
 Apr 17-22: at CIAT Center for staff briefings
 Apr 17-29: at CIAT Center for report writing and presentation

Second EPR (Nov 84 - Mar 85)

Nov 28-Jan 18: visited NARP in Guatemala, Costa Rica, Thailand, Indonesia*
 Jan 23-Jan 27: meetings in France with key scientists*
 Jan 29-Feb 3: at CIAT Center to attend internal review session
 Feb 4 -Mar 3: visits to CIAT activities in Brazil, Mexico, Nigeria
 Mar 4 -Mar 12: at CIAT Center for staff briefings
 Mar 12-Mar 24: at CIAT Center for report writing and presentation
 *just one group member involved in these activities

(c) Impact of the Reviews

(ref: appendix V, Second EPR; CIAT report of "Action Taken To Date (May, 1986)" on the EPR recommendations)

All recommendations listed in the First EPR were acted upon or achieved except two pertaining to the animal programs in swine and beef and one pertaining to long range planning. These are described below. But note, the First EPR was essentially an endorsement of CIAT's research program and strategy. Most recommendations were fairly broad in scope or of minor significance. One exception to this was a recommendation by this panel that CIAT conduct impact studies of its research. This has since become a major activity at the Center.

The First EPR, the Farming Systems Research Stripe Review, and a TAC committee report on upland rice (1980) encouraged CIAT to initiate work on agrosystem characterization. This led to the creation of an Agroecological Studies Unit, begun in 1978 and expanded in 1983 and 1984.

The First EPR recommended that all programs be continued without interruption and that CIAT devote more resources to cattle disease research. But CIAT eliminated the swine program when budgets became tight and cut out all its cattle disease research to concentrate on pastures improvement. The results of its own internal planning mechanisms found "growing evidence that poor nutrition rather than animal diseases represented the key constraint to improved livestock production" (Annex V, p 5). See section G below for a detailed account of the evolution of beef production systems research programs at CIAT.

The First EPR also felt strongly enough about the direction of CIAT research at the time that it recommended that resources not be devoted to long range planning. But pressure from donors in 1978 overrode this recommendation (Annex V, p 1).

A recent CIAT report (May, 1986) reviewed the action taken by CIAT in light of the recommendations of the Second External Review. CIAT has made significant progress in implementing these recommendations.

For example, CIAT has taken significant steps to increase its commitment to basic research. In 1985, it established the Biotechnology Research Unit. It has also considerably increased the number of collaborative research projects with universities and specialized research institutions. It has responded to the panel's concerns on staff development by committing more resources to sabbatical leaves for senior staff and by developing an explicit policy to encourage staff to publish research results in scientific journals.

Also, CIAT has responded favorably to most of the panel's recommendations aimed at increasing the effectiveness of the cassava research program. In early 1985 it implemented a large-scale cassava

demand study to assess the potential demand of cassava as a human food and other uses in Latin America, Asia, and Africa. Furthermore, it reached a new agreement with IITA defining working relationships and responsibilities and on guidelines for the safe interchange of cassava materials. Good rapport between the DG's of IITA and CIAT were reported. IITA is collaborating with CIAT on the economic studies and on other joint research projects as well.

Finally, CIAT has been able to identify and solicit resources for several new staff positions and research facilities that were recommended by the Second EPR.

The progress made by CIAT so far in implementing these recommendations indicates the flexibility of CIAT staff and management in pursuing promising new lines of research and the commitment of the management to the planning mechanism.

(d) Handling Criticisms in the Reviews

All the review reports have been strong endorsements of CIAT's program and strategy. Most comments by the reviews are for program expansion -- more scientists, more projects and facilities.

Two criticisms in the Second EPR are:

- (1) The relationship between CIAT and IITA on cassava research collaboration is described as "unsatisfactory". See the abstract on IITA for a detailed exposition of this issue.
- (2) The number of scientific publications is described as "disappointing". The review urges CIAT to devote more resources to such studies so as to build up CIAT's international reputation and to force scientists into more careful assessment of their results.

The panel expressed concern about the long run efficacy of cassava research. They suggested that background studies be undertaken "to better understand the markets for human food and animal feed ... help determine the shape and direction of the cassava program" (p 49-50). This was not a criticism of CIAT's cassava research program, however, but seems to stem from the panel's concern that cassava may be an area to deemphasize (in the long run) as its demand potential may be limited.

Item (2) indicates a desire of the panel for CIAT to move more into basic research areas from applied technology development. The previous section on "Impact of the Reviews" indicates the positive response of CIAT to these criticisms.

(e) Eliciting Staff Concerns

The Second EPR recommends more resources be devoted to scientific staff development in the form of sabbatical leaves and additional time allotted for scientists to publish in scientific journals.

The EMR praises the leadership of the DG and his unique management style. The DG actively seeks out individual scientists concerns in one-on-one meetings in addition to monthly staff meetings. There is also an active committee structure to elicit participation in management by the scientific staff (p 12-13).

The EMR also notes the heavy reliance on the post doc pool for senior scientist recruitment (p 147).

(f) Research Organizational Structure

CIAT has responsibilities for three main crops, cassava, beans, and rice, and has an active Tropical Pastures Program. The CIAT research strategy is to form multidisciplinary teams to conduct research on each of the commodity areas. An economic component is an integral part of each commodity research team. The economic component is responsible for (1) evaluating macro production and marketing trends in the CIAT commodities; (2) identifying constraints to productivity; and (3) evaluating proposed technologies using experiments and farm level data.

The cassava and bean programs emphasize research on biological technologies whereas the pastures program employs about an even mix of biological and informational technologies in its research program (see table 1 in the summary section for an explanation of these categories).

The Second EPR pointed out the possibility of using specialized disciplinary units (across commodities) for specific problems. For example, it proposes a Science and Germplasm Resource Unit (SGRU) to conduct research on tissue culture, a need of all the commodity programs. The advantage of this structure would be that it (1) requires a minimum amount of reorganization, (2) recognizes future limits on staff, (3) would generate a critical mass of scientists working in advanced research, and (4) could accommodate the addition of new disciplines (e.g., nematology).

(g) Research Planning Process

The First EPR reported a fairly passive role of the Board of Trustees and strong leadership on the part of the DG and program leaders. But the Second EPR and the EMR give evidence that the role of the Board has increased in research strategy formulation. For example, the Second EPR reports that the changes that occurred in the Animal research programs at CIAT were "thoroughly debated and agreed upon by the Board" (Annex V, p 5).

Furthermore, the Second EPR reports that long range planning has been "institutionalized" at CIAT (p 147). The long range plan that was developed in 1980 underwent thorough revisions in 1984 and is "clear, concise, and adequately detailed" (p 147).

As an illustration consider the developments in the beef production systems research program that have occurred at CIAT. This program has undergone major changes since its inception in 1969, as a result of the internal planning process at CIAT. These changes sometimes ran contrary to the recommendations of the external reviews.

In 1973 CIAT initiated a major review of its research program in Beef Production Systems, inviting prominent scientists from outside CIAT to participate in the review. This panel recommended that the program be concentrated on a few priority areas. Forage quality was established as the primary limiting factor to beef production in the region of CIAT's concern.

Even though the First EPR (1977) was amply represented in the livestock area, it recommended that CIAT place more emphasis on animal disease. But CIAT's own evidence demonstrated that animal nutrition was the key limiting factor to beef production (and that research on animal disease was already well represented in the IARC system by ILRAD). It rejected this recommendation of the EPR, eliminated what remained of its animal disease research program, and in 1979 renamed this program the "Tropical Pastures Program" to better reflect its principal thrust. The Second EPR fully endorsed this action taken by CIAT.

A second example of how the planning process at CIAT has been effective is in the establishment of the Seed Unit in the late 1970s. In 1977, CIAT management recognized the need to assist Latin American countries in developing domestic seed industries. Within a year it had identified additional funding sources to establish a Seed Unit with the following objectives:

- (1) to increase the availability of improved seed; and
 - (2) to provide assistance to develop domestic seed industries.
- It has accomplished the latter through extensive training programs, both at CIAT and within client countries; hosting workshops; and through cooperation with institutions in developed countries (e.g., with Mississippi State).

The lack of an effective local seed industry is identified as a common constraint to technology diffusion in developing countries. CIAT recognized this problem and took initiatives to overcome this constraint. There was no mention of this issue in the First EPR of CIAT in 1977.

(h) Interaction with National Program

CIAT uses an extensive system of regional organizations as its fundamental tool in its relations with NARP's. CIAT outposts staff in appropriate regions.

CIAT courses are taught in-country as well as at the center. The Second EPR made special note of the quality of CIAT's audio-visual training materials.

Also noted in the Second EPR was the fact the CIAT graduates are now in leadership roles in several NARP's, and that this facilitates CIAT/NARP cooperation.

CIAT's philosophy is to move more into basic research areas as the NARP capabilities develop. However, there was an indication in the Second EPR of some paternalism on the part of CIAT in its relations with NARP's.

(i) Relations with Other Institutions

There are several examples of CIAT collaborating on research projects with institutes in developed countries. But this is not done on a systematic basis but only as special needs and opportunities arise.

The Seed Unit cooperated with the private sector in assisting the development of domestic seed industries (CIAT in the 1980s, the institutes long range planning document).

5.3 THE CIMMYT REVIEWS

Reviews: EPR, 1976
EPR, 1982

(a) Panel Membership

First EPR: 9 members

UK (2)	NARP
Australia	academia
Canada	academia
W Germany	academia
Brazil	NARP
US	IFPRI
CGIAR/TAC (2)	

Second EPR: 9 members

Australia	academia
US (3)	academia
Netherlands	academia
Kenya	NARP
CGIAR/TAC (2)	

(b) Panel Itinerary

First EPR: Mar 21 to Apr 4, 1976

Mar 21 - 30: meetings with CIMMYT staff at El Batan, Obregon and Poza Rica.

Mar 31 - Apr 4: at CIMMYT (El Batan) for report preparation and presentation of results.

Second EPR: Sep 4 to 24, 1982

Sep 4 - 15: meetings with CIMMYT staff at El Batan and Poza Rica.

Sep 16 - 17: visits to on-farm research and NARPs in Mexico, Guatemala.

Sep 18 - 24: at CIMMYT for report preparation and presentation of results.

(c) Impact of the Reviews

Recommendations from the First EPR to (1) provide core support for the triticale research program, (2) expand relations with other research institutes in both developing and developed countries, and (3) expand the economics program; were implemented.

However, a recommendation to concentrate more on breeding research was rejected in favor of more emphasis on farm trials. CIMMYT felt this was necessary to reduce the site specificity of its breeding program. The Second EPR endorsed this decision. There were also a series of recommendations in the First EPR to expand the training program and communication services. But CIMMYT was unable to implement these immediately due to financial constraints. A recommendation to make the regional programs part of the core also was not completely implemented, though regional programs were increased.

The following recommendations in the First EPR received no comment in the later review. But CIMMYT documents show that work has been carried out in the first three areas:

- (1) to identify disease resistant genes in durum and breadwheat;
- (2) to breed dry area varieties;
- (3) to verify that daylength neutrality is a desirable characteristic in the Mediterranean region;
- (4) to conduct socio-economic studies of hulless barley.

(d) Handling of Criticisms in the Reviews

Both reviews were strong endorsements of the CIMMYT program and strategy. No major weaknesses were reported. There is a notable difference, however, in the content of the First EPR and the Second EPR. The First EPR was basically a summary and endorsement of the past research program and method. The Second EPR, however, contained more indepth analysis. It contained a more detailed description of the research program structure and management policy. More attention was given to directions for future research but this discussion was in fairly broad terms. There was more discussion on the role of CIMMYT vis a vis other IARC's and NARP's.

The Second EPR did criticize, however, what it felt was an over reliance on the pool of post doc researchers for senior research staff recruitment. This may lead to isolation and staff "inbreeding". This practice received praise in the First EPR, however.

(e) Eliciting Staff Concerns

The high quality, dedication, and morale of the research staff was noted in both reviews.

(f) Research Organizational Structure

Research at CIMMYT has three major components: the wheat program, the maize program, and the economics program. The CIMMYT program is highly focused on the breeding of maize and wheat. It collects germplasm material, produces new plant genotypes, and distributes these through NARP's. Historically, it has emphasized developing applied technology, but the Second EPR suggested that more resources be devoted to basic research and more staff time be devoted to scholarly publications.

The economic research program carries out micro studies, to identify farm level production constraints, and global studies to evaluate world production and price trends of CIMMYT crops.

(g) Research Allocation and Planning

CIMMYT has established an active internal planning process. It carried out major planning exercises in 1966, 1970, 1973, 1976, and in 1979-80. Prominent scientists from outside CIMMYT were invited to these sessions (Second EPR, p 30).

The Board of Trustees became more active in planning and setting research priorities as financial stringencies became more acute. It carries out this role mainly through its Program Committee.

The economics program had just been established at the time of the First EPR. At that time the objectives of this program were to (1) help determine research priorities; (2) evaluate the impact of research programs; and (3) collaborate with NARP's on economic studies. However, at that time, there wasn't much need to prioritize research projects because there was a rapid and continued growth in financial resources. But even though research funds have leveled off in recent years, the economics program apparently has not been very active in the research policy area (according to the review).

(h) Interaction with National Programs

CIMMYT interacts with national programs both through regional networks and through bilateral programs. The regional programs are the main tool for disseminating, testing, and evaluating new varieties. CIMMYT posts its own staff directly in these regions, with representatives in South America, Asia, and Africa.

Bilateral programs are used to address specific research problems.

Training programs, opportunities for thesis research, publications, staff visits to the field, and visits by NARP representatives to the Center are other modes of interaction.

(i) Interaction with Other Institutions

CIMMYT works closely with certain institutions in developed countries on certain tasks. For example, it has developed a maize germplasm classification system with the University of Colorado and has collaborated with the University of Manitoba on its Triticale program. There is also extensive germplasm exchange between CIMMYT and these institutions.

The relationship between CIMMYT and the other IARC's received considerable attention in the reviews.

5.4 THE CIP REVIEWS

Reviews: First EPR, 1977
 Second EPR, 1983
 EMR, 1983

(a) Panel Membership

First EPR: 8 members

Netherlands	academia, plant science
USA (2)	academia, economics and ?
UK	NARP
India	NARP, potatoes
Peru	NARP
CGIAR/TAC (2)	

Second EPR: 8 members

USA	academia
Australia	academia
Argentina	NARP
Philippines	academia
UK	academia, plant pathology and entomology
Canada	IDRC
CGIAR/TAC (2)	

EMR: 2 members

(b) Panel Itinerary

First EPR (1977)

Aug - Oct: visit to contract research institutions in US and Europe
 visits to off-station activities and NARPS in Mexico,
 India and Kenya

Dec 4 -12: at CIP Center for staff briefings

Dec 13-17: at CIP Center for report writing and presentation

Second EPR (1982-83)

Dec 7-11: at CIP Center to attend Internal Review

Jan 11-Feb 5: visit to contract research institutions;
 visit to off-staion activities and NARPS in India,
 Philippines, Thailand, Bangladesh, Mexico, Costa Rica, and
 Columbia

Feb 7-12: at CIP Center for staff briefings

Feb 13-19: at CIP Center for report writing and presentation

(c) Impact of Reviews

A recurring theme of the First EPR was the need to develop safe quarantine procedures for germplasm material transfer between countries. In response to this concern, CIP curtailed its material transfers until safer procedures could be developed (Second EPR, p ix).

The Second EPR also noted a marked improvement in the role and focus of the social science research program at CIP (p ix), another concern of the First EPR.

The First EPR also included a list of recommendations for future research directions. The Second EPR does not analyze these individually but states that "CIP has responded quickly, though not precipitously, to recommendations of both Quinquennial Reviews" (p x).

The Second EPR recommended that the social sciences be more integrated into the research program. Some thrusts had social science involvement but much of the work of the social science department was outside of the thrusts. As indicated in the Profile Update (a redraft of the CIP long-range plan, completed after the Second EPR), the thrusts were reorganized and the social science research program was fully integrated into this structure.

(d) Handling Criticisms in the Report

The First EPR contained few, if any, direct program or management criticisms. Essentially, the report was an affirmation of CIP's progress and program. The social science component appeared to lack firm direction, however, and the panel made several recommendations about getting a better program underway.

The Second EPR was somewhat critical of research organization at CIP, claiming that the research "thrusts" had become too singledisciplinary in their operation (p 60). It suggested a reorganization of the research program according to agroecological zones.

The EMR expressed concern that the management structure was too loose, especially with regards to attention to detail at lower management levels. Methods of accounting for research expenditures were considered untimely and of insufficient detail (p 15). Information on research expenses is critical for ongoing evaluation of cost effectiveness of research program. But the Second EPR praised the loose management structure: "...the loose management structure...has ensured the sense of freedom and independence of individual scientists" (p 62).

(e) Eliciting Staff Concerns

Staff morale at CIP is characterized as very high and the staff feel they are a part of the management and policy determination process (reported in all review reports).

(f) Research Organizational Structure

Three main focuses characterize CIP research structure:

- (1) contract research with institutions in developed countries;
- (2) centerbased research organized into ten "thrusts";
- (3) regional research networks with developing countries.

This structure has enabled CIP to maintain a strong research program while developing only a modest center research facility. It relies heavily on contract research (in 1982 there were 35 separate projects in this category) for many of its research needs. This also serves to build interest at these institutions in CIP program and objectives, facilitating a wider range of contact and exchange. Use of contract research to this degree is unique in the IARC system.

"Thrusts" are defined as "problem areas" with multidisciplinary teams formed to carry out research projects within the thrust. In practice, however, the research is usually singledisciplinary (Second EPR, p 60). Before the Second EPR, Social Science research was organized outside of the thrusts, though one or two thrusts had social scientists working with them. After the EPR, however, an additional thrust was created (and the other thrusts were reorganized) to fully integrate social science research into the research program. See the table in the summary paper for list of the separate thrusts.

CIP has very effective relations established with national programs, through a system of regional networks. CIP provides technical and financial support to the regional networks. It assigns core staff to work directly within national programs as part of the networks. These field staff facilitate the work of "technology groups" of Center and NARP scientists assigned to evaluate technology packages developed by thrusts under local conditions.

The Second EPR attributed program effectiveness to:

- (1) simplicity of management structure;
- (2) concentration of effort, i.e., a minimum critical mass of scientists working on a relatively small number of problems;
- (3) concentration on utilizing improved germplasm as the principle technology.

(g) Research Planning Process

CIP has an active annual internal review program and a participatory management style.

CIP uses Regional Planning Conferences, involving CIP scientists, NARP representatives, Board members and prominent scientists from developed country institutions to identify research priorities and strategies for each region.

CIP produces and periodically updates a long range plan called Profiles, which looks ahead to 2000 A.D.

But the Second EPR recommended greater involvement of social scientists to help guide biological research in identifying production and consumption constraints. Integration of social science disciplines in the planning process had been poor so far (Second EPR p 41, p 60).

The leadership of the DG is praised as a key to the effectiveness of CIP. There is little mention of the role of the Board of Trustees in the review reports. But other sources suggest that Board members are actively involved in internal reviews and planning conferences, and regularly visit regional programs.

(h) Interaction with National Programs

CIP devoted 40% of its budget to regional activities, as of 1982. The system of regional networks represented the main thrust of these efforts. 15% of CIP's core staff were posted directly in regional locations in 1982. There were seven regional headquarters.

These regional staff were considered the key ingredient to the success of the regional programs. The Second EPR noted that the success of the regional networks "... is the result of the detailed knowledge of the problems and difficulties of their individual client countries, built up by their regional scientists in the field" (p 42).

In developing national research capacities in potato research, CIP (1) contacts countries and identifies human resources in each country; (2) forms research priorities with that country that can be accommodated by existing national expertise; and (3) assists in approaching donors for additional financial support for facilities, training, and consultancies for that country.

CIP also carries out a relatively high proportion of its training programs in the host countries, often employing host country instructors.

CIP attempts to transfer activities to national programs as their capacities develop.

Essentially, CIP's theme is to maintain a low profile, utilizing contract research to maintain a low center overhead, and putting national programs at the forefront.

(i) Interactions with Other Institutions and Private Sector

No references were made to any involvement with the private sector. See references to contract research in section f above.

5.5 THE IBPGR REVIEWS

Reviews:

1st EPR, 1979

2nd EPR, 1985

EMR, 1985

(a) Panel Membership

1st Review (3 members, including 2 who joined on short notice)

2nd Review (9 members)

Australia

USA

Pakistan NARP

Netherlands NARP

Canada academia

Argentina

CGIAR/TAC (3)

(b) Panel Itinerary

1st Review

Phase I: summer and fall of 1979

Reports prepared on regional activities (for Latin and North America, for Southwest Asia and Mediterranean, and for South and Southeast Asia). Visit to the IBPGR program in Boulder, Colorado and to Birmingham University, U.K.

Phase II: December 3-8, 1979

Meetings with IBPGR and FAO staff at Rome headquarters office.

2nd Review

Phase I: Sept 4, 1984 to Jan 26, 1985

Panel representatives visited NARPs, IBPGR field units, and three IARCs in Hungary, Philippines, USA, Thailand, Pakistan, Peru, Brazil, Nigeria, and Ivory Coast. IARCs visited were IRRI, CIP, and IITA. There was also a five day session at the IBPGR Secretariate during this time to discuss management issues.

Phase II: Jan 27 to Feb 9

Panel at IBPGR Secretariate for discussions with Board, staff, and FAO representatives, report writing, and presentation of main conclusions to IBPGR Board and senior management.

(c) Impact of Reviews

The 1st review had very minimal impact on the IBPGR program and activities. Last minute panel membership changes resulted in a weak report. The panel made no recommendations for any substantial changes at IBPGR. It did recommend a continuation. It apparently avoided a key issue: tension in the relationship between IBPGR and FAO (see below).

The 2nd review has potentially substantial impacts on IBPGR. It called for significant changes in the organizational structure of the institute and for a stronger research component to the program. Most significantly, it suggested that IBPGR be separated operationally from FAO. IBPGR's current relationship with FAO was identified as a major constraint to program implementation.

Areas needing additional research identified in the 2nd review are:

- (1) conservation methods (i.e. storage of genetic materials);
- (2) collection methods (such as genetic sampling methods to determine genetic distribution and diversity);
- (3) plant health in germplasm movement (especially in preventing the spread of pests and diseases).

The 2nd review took the view that while many of these research needs could be met through contract research, IBPGR also needed its own research capacity in order attract high level staff and to remain fully abreast of scientific development in these areas.

The 2nd review envisioned a restructured institute that would be more similar to the structure of other IARCs. It would be independent of FAO, its Board would no longer be involved in operational matters, and it would add a research component to its current program of activities. A change of venue would also be necessary.

The 2nd review also presented some less radical options for changes in IBPGR management and structure if the preferred proposal proved unfeasible. The 2nd review developed these proposals in close consultation with IBPGR Board and management.

In this regard, the 2nd review was a forum for the Board and management to present its view of a significant structural issue facing the Secretariate. The panel served as an independent third party to assess the various views and make recommendations to TAC. On this issue the recommendations of the panel concurred with the views of the Board and management.

(d) Handling Criticisms in the Reviews

The 1st review contained no criticisms of IBPGR. It strongly endorsed and reaffirmed the program and direction of the institute.

The 2nd review also commended IBPGR progress, program, and management, but identified several areas needing attention:

- (1) an inadequate internal review process;
- (2) poor recruitment and promotion policy;
- (3) poor internal communication;
- (4) overly centralized management;
- (5) insufficient genetic resource evaluation and utilization efforts;
- (6) apparent poor quality of some training activities (actually, this was a point made by the Board itself, p 44, EPR).

The source of the tension between IBPGR and FAO appears to be both structural and attitudinal. As a part of the FAO organization, IBPGR must follow FAO recruitment and promotion regulations, which severally constrains IBPGR options. Also FAO has been unable to provide IBPGR with sufficient office space at its headquarters. But the problem goes beyond these structural matters. An indication of the FAO attitude toward IBPGR (and toward the CGIAR in general) is given on page 65 of the 2nd EPR. The Director of FAO is quoted as saying the CGIAR system is "without legal personality or legal structure". Apparently, FAO questions the legitimacy of the international status of the CGIAR institutes.

(e) Staff Concerns in the Reviews

The 2nd external review identified significant morale problems among the staff at IBPGR. The causes of the problem were identified as (1) lack of internal communication; (2) lack of access to and prompt decisions from the Executive Secretary (due to his excessive management burden); (3) recruitment and promotion policies; and (4) the isolation and insecurity of regional staff.

(f) Organizational Structure

IBPGR's structure is quite unique in the CGIAR system. Two main factors distinguish the institute. First, it has had an operational board with a secretariat. Initially, FAO was to provide staff and support services, but in practice the Board had to develop its own operational capacity. Thus the Board has served a dual role as Trustees and as managers/staff, though in recent years the Board has devolved much of its responsibilities in operations to the Executive Secretary. Second, IBPGR has a special relationship with FAO. It is housed in FAO facilities and is a part of the FAO organization: IBPGR is also known as the Crop Genetic Resource Center, a line unit in FAO.

The EMR judged that the dual role of the Board has led to poor accountability of management to the Board and to poor planning. It also felt that the organization of the secretariat was too centralized around the Executive Secretary, with poor internal communication between staff. Finally, the lack of autonomy from FAO was seen as a significant constraint on IBPGR's ability to carry out its mandate. For example, the expanded research role envisioned by the 2nd review panel would be

unworkable in the present arrangement, due to lack of facilities and lack of FAO support for such a role.

IBPGR has had a very loose organizational structure, with no middle-level management positions. Management activities rested with the Executive Secretary and then the staff work on various activities under him. There are five major types of activities:

(1) Collection

IBPGR has organized expeditions to collect various species.

(2) Conservation

IBPGR sets standards for seed storage and exchange and provides some funds for facility improvement at seed storage centers. It designates one or two centers for storage responsibility for each major crop.

(3) Evaluation and Utilization

Only a small portion of the existing collection of germplasm has been evaluated, and a huge backlog exists on characterizing the content of these collections. IBPGR has developed descriptor lists and prepared some publications of existing data. It has not seen utilization of genetic resource material as its responsibility, since others fulfill this role. The panel disagreed on this point, however. Breeders tend to only use material that is similar to existing cultivars. For radically different cultivars, pre-breeding and evaluation of interesting agronomic characteristics are necessary. The panel saw a significant role for IBPGR in this area, especially for crops not covered by IARCs.

(4) Documentation

IBPGR has sought to get genebank curators to use workable data management systems. It has supplied hardware and software, trained personnel, published directories, and compiled data bases. Progress in this area has been very slow.

(5) Training

IBPGR works with the U of Birmingham on an MS program in Genetic Resource Conservation. This program was criticized in both the first and second review as lacking an applied component to the degree. IBPGR also conducts some short courses. Fellowships are also provided for advanced study. Finally, there is an intern program at IBPGR which employs several scientists from developing countries each year.

IBPGR also employs several regional staff. Their role is not clearly defined. They are supposed to "encourage, support, and coordinate genetic resource programs" in that region. They operate in an "opportunistic" manner to carry out this function. They try to establish contacts with genetic programs in the region, identify the status and needs of these programs, sometimes serve as collectors, and enhance information and data base exchange.

(g) Planning Processes

Crop Advisory Committees and ad hoc Working Groups are used by IBPGR as planning mechanisms. IBPGR invites outside scientists to serve with IBPGR staff on these committees. These committees formulate plans and priorities (i.e., a conservation strategy) for a specific crop.

Furthermore, IBPGR's Strategy Report is an operational guide for the institute's activities. It was prepared by a committee of Board and non-Board members. It prioritizes crops and guides the allocation of resources between collection, conservation and other activities.

Each year an operational plan is developed, depending upon opportunities that exist (based on contacts with NARP's and other institutions that have been established).

Review and evaluation of activities had been ad hoc and superficial. It basically consists of an annual oral report of the Executive Secretary to the Board. IBPGR has not felt a need for a formal evaluation exercise, given the small staff. The EMR, however, recommended that a systematic annual review process be implemented.

(h) Interaction With NARPs

Modes for interaction with NARPs are through:

- (1) regional staff and national coordinators;
- (2) representatives from NARPs serving on Crop Advisory Committees and Working Groups;
- (3) interns from NARPs working at IBPGR;
- (4) interaction on a project basis with NARPs for genetic resource facility improvement.

One key concern with national governments and IBPGR is the "free flow" of genetic resources. There is a motive for individual countries to try to restrict access of outsiders to this material and thereby capture the value of their natural genetic resources. IBPGR has always pursued a "free flow" policy for unimproved genetic resources in principle, but has tried to adopt an apolitical stance on this issue (2nd EPR, p xix). The FAO now is heavily involved in this matter.

IBPGR involvement with NARPs is described as "opportunistic". In other words, IBPGR has few funds available for research programs or collection/conservation activities. It helps establish crop strategies (using the Crop Advisory Committees) and then encourages NARPs to adopt them and to modify their programs to comply with these national imperatives.

IBPGR's overall objective is to establish a global network, linking and coordinating existing genetic resource activities, using NARP and IARC facilities.

(i) Links with Other Institutions

1. With FAO.

The key link is with FAO. The benefits and costs from this relationship were outlined in the 2nd external review. This review judged that these costs outweighed the benefits and that it would be more appropriate for IBPGR to be structured independently from FAO while retaining some important links (like having a permanent FAO representative on the Board).

2. With other IARCs.

There has been in the past some confusion over respective roles. Some IARCs reduced their support of their own genetic resource units when the IBPGR was established, thinking that IBPGR would take over these responsibilities. This was not the function of IBPGR, however. The 2nd review reported that this misunderstanding had been clarified.

IARC's and IBPGR cosponsor Crop Advisory Committees.

The 2nd review visited three centers and conducted a written survey of Genetic Resource activities at the centers. In addition, some panel members had direct experience with IARCs. The panel claimed there was close cooperation and no overlap between IBPGR and other IARCs.

But the review made no attempt at a system-wide or global review of genetic resource activities. It rather focused on IBPGR program and structure.

3. Private Sector

Private sector breeding programs and "breeders rights legislation" are areas of interest to IBPGR. But there is very little or no interaction between the private sector and IBPGR reported in the reviews.

IBPGR concentrates on unimproved germplasm.

The panel discussed breeders rights legislation but did not express or comment on IBPGR views on this issue. The panel seems to downplay the concern that this type of legislation might bar access to or flow of genetic resources. But the panel suggests that IBPGR might want to monitor genetic diversity trends to quantify the impact of public/private breeding programs on the genetic diversity in use.

There is a concern that plant breeders use only a narrow set of genetic material and that this practice threatens to diminish the genetic diversity in use. But this problem is indicative of both public and private sector breeding programs. The panel recommended that IBPGR place more attention on pre-breeding and characterization/description efforts. Thus more material can become available to applied breeding programs.

5.6 THE ICARDA REVIEWS

Reviews: EPR, 1984
EMR, 1984

(a) Panel Membership

EPR: 11 members

US	IADS
Australia (2)	academia: economics, ?
France	NARP
Egypt	academia: economics
UK	NARP: plant breeding
W Germany	NARP: animal science
Italy	academia: plant breeding
CGIAR/TAC (2)	

EMR: 3 members

(b) Panel Itinerary

Feb 11-13: visit to field activities and NARP in Egypt
Feb 15-20: at ICARDA Center for staff briefings
Apr 7 -14: visit to field activities and NARP's in Morocco, Tunisia
Apr 15-21: at ICARDA Center for staff briefings
Apr 22-May 2: at ICARDA Center for report writing and presentation

(c) Impact of Reviews

There appeared to be a positive relationship between the panel and ICARDA management with open and frank discussion of several current issues facing ICARDA (see the next section for a discussion of these issues). The Board of Trustees, management, and staff all endorsed the panel's recommendations (p vii-ix of the EPR), with the exception of the panel's recommendation to shift emphasis in the pasture program from fallow lands to marginal lands. The Board's rationale for this was that (1) research on marginal lands would duplicate work being carried out by other research institutes in the area (i.e., ACSAD), and (2) there was a promise of early adoption of current technologies under development in replacing fallow lands with pasture forages. ICARDA also recognized that its training programs had been inadequate, a major criticism of the EPR.

(d) Handling Criticisms in the Reviews

The panel was sensitive to the difficulties faced in the establishment of ICARDA due to the political instability of the region. For example, original plans called for the establishment of a decentralized center with major facilities in Lebanon, Syria and Iran, including its headquarters in

Beirut. The main station is now in Syria, along with its headquarters, and only a small sub-station is maintained in Lebanon.

In addition, ICARDA is still in a developmental stage, testing the "fit" of its mandate. Much of the EPR is devoted to discussion of several key issues facing ICARDA:

- (1) whether to include research on supplemental irrigation (rather than stay strictly with rainfed agriculture)?
- (2) what should the role of livestock research be in the farming systems research program?
- (3) should research be expanded into high altitude areas?
- (4) what should the relation be between ICARDA and other IARC's involved in the region (e.g. should the mandate for barley research be transferred from CIMMYT to ICARDA)?
- (5) where should new substations be developed?

In general, the panel endorsed the views of ICARDA's management, with a couple of exceptions, namely (1) ICARDA's current emphasis on livestock research was deficient, and (2) its training program had not been adequate.

This first EPR also refrained from any evaluation of research results, recognizing it was too early to be able to appropriately judge ICARDA in this area.

(e) Eliciting Staff Concerns

The EPR and EMR commented on the high morale and dedication of the research staff.

Salary discrimination between international and regional staff was noted as a potential (or existing) area of friction, and the panel endorsed the position of ICARDA's management to move in the direction of a uniform personnel policy. ICARDA also operates a primary school for staff children (the lack of which was a concern of expatriate staff at IITA).

(f) Research Organizational Structure

Research is organized similarly to IITA, but with what appears to be better multidisciplinary integration and a more focused farming systems research program. The research program is divided into four major areas:

- (1) CIP Cereals (barley, durum, breadwheat, triticale)
- (2) FLIP Food Legumes (fava beans, lentils, chickpeas)
- (3) PFIP Pasture and Forages
- (4) FSRP Farming Systems

In addition, there are a few "supporting scientific disciplines" and a genetic resource unit that cut across the four programs listed above.

The research program on each food crop is organized around four main project areas:

- (1) germplasm evaluation
- (2) breeding
- (3) agronomy/physiology
- (4) disease and pest control

Some food crop programs also include a quality evaluation section.

The pasture program is organized mainly around problem areas: (1) fallow replacement forages and pastures, and (2) marginal land improvement.

Unlike IITA, farming systems research at ICARDA is integrated with the other program areas. FSR now includes agronomic, livestock, and economic research components. Initially, the primary activity was village-level studies of six villages in northern Syria. This provided a base of agricultural and socio-economic data with which to diagnose production constraints. As of 1981, FSR was reorganized around six project areas, each (except project V) collaborating with one or more of the other programs (CIP, GLIP, or PFIP):

- | | | |
|---------|-----|---|
| Project | I | barely production |
| | II | BNF and water use of forage legumes |
| | III | crop rotation |
| | IV | role of livestock in farming systems |
| | V | environmental zoning |
| | VI | FSR outreach - extend and duplicate FSR to a new region (Tunisia) |

Agronomic research is the main focus in the FSRP.

The panel noted that FSR at ICARDA had given the scientific staff in all programs a solid appreciation of the farm level constraints to agricultural productivity in the region.

(g) Research Allocation and Planning

The DG has pursued a participatory management style, with scientific staff at all levels involved in program and budgetary planning. In addition, ICARDA has a computerized Management Accounting and Information System which provides timely information on budget expenditures. ICARDA uses it extensively as a research management tool.

The EMR noted that this management style had resulted in a strong staff loyalty to the research program (p 5).

In addition, ICARDA developed a long range plan (called Pathways to the 1990s). But the EPR panel noted that this report was basically an extension of current research programs (i.e., not taking into account changing circumstances in the region over time), was overly optimistic concerning expected achievements, and used too short a time horizon (1983 to 1990).

One critical constraint to long range planning was the uncertainty of funding.

The Board of Trustees at ICARDA apparently plays an active role in management and planning (EPR p 9).

(h) Interaction with NARPs

Training activities, an important tool of most institutes in developing good relations with NARP's, has been weak at ICARDA. ICARDA has used Board members as one means to facilitate contacts with NARP's.

ICARDA also established collaborative research projects with some NARP's in its region, allocating core funds to these projects (in addition to other funds). These projects involve scientist exchanges.

ICARDA's long range plans include establishing sub-region stations, in concurrence with the original concept of ICARDA as a decentralized research center. Currently a high altitude research project is being started in Baluchistan using and expanding existing NARP facilities. Eventually another sub-region station will probably be initiated in North Africa, most likely in Morocco.

(i) Interaction with Other Institutions

ICARDA has a formal agreement to collaborate on research with ACSAD (Arab Center for Studies of Arid Zones and Dry Lands), a regional research and development institute located in Syria. But at the time of the review, little in the way of concrete cooperation had taken place.

ICARDA plans to establish linkages with agricultural research institutions in Southern Europe located in similar agro-climatic zones.

5.7 THE ICRISAT REVIEWS

Reviews: First EPR, 1978
 Second EPR, 1984
 EMR, 1984

(a) Panel Membership

First EPR: 11 members

Australia	NARP
UK	NARP
Sudan	NARP
France	NARP
US	academia
India	NARP
CGIAR/TAC (2)	

Second EPR: 10 members

Denmark	academia
US	academia
Philippines	academia
India	academia
Kenya	NARP
France	NARP
Australia	NARP
W Germany	academia
CGAIR/TAC (2)	

EMR: 4 members

(b) Panel Itinerary

1st Review: Sep 23 to Oct 14, 1978

Sep 23 - 24: initial meeting with Board of Trustees (Paris)
 Sep 25 - 28: visits to West African Programs (Burkino Faso and Senegal)
 Sep 30 - Oct 14: at ICRISAT Center (Hyderabad) for meetings with staff, report preparation, and presentation of results to senior management

2nd Review: Aug 15 to Sept 14, 1984

*Feb 6 - 17: at ICRISAT to attend internal review of Sorghum and Millet Programs
 *Mar 29 - Apr 4: visit to ICRISAT programs in Mexico
 *Jun 23 - 24: visit to ICRISAT programs in Syria

Aug 15 - 29: visit to ICRISAT programs and NARPs in Burkino Faso, Niger, Pakistan, and India
 Aug 28 - Sep 14: at ICRISAT Center (Hyderabad) for meetings with staff, report preparation, and presentation of results to senior management

*only one or two panel members participated in these events

(c) Impact of Reviews

The first EPR suggested several new research endeavors for ICRISAT and made a host of recommendations concerning staffing and facility needs of the institute if it were to accomplish its research objectives.

Three main issues seem to emerge from the review. First, there was a lack of convergence between ICRISAT's "crop" and "geographic" mandates. ICRISAT's mandated crops are grown in a wider area than the areas classified as "semi-arid". This apparently led to some confusion amongst staff concerning the appropriate areas in which to concentrate research efforts. The panel referred this issue to further study. Additional research in climatic classification at ICRISAT later clarified this issue. But more important, both the first and second external reviews confirmed ICRISAT's philosophy of developing technologies targeted toward resource poor farmers in rainfed areas.

A second main issue addressed by the first review concerned the relevance of pigeon pea research at ICRISAT. The first review took the position that since pigeon peas were most important to India, this research effort should be integrated with the Indian national agricultural research program. But ICRISAT decided to maintain its own pigeon pea research program, because it concluded that this crop held promise in many areas of Africa as well. In the second external review, it was noted that the main benefactors of ICRISAT's pigeon pea program outside of India had been Australia, and called for a reassessment of this program.

A third main recommendation of the first review was that ICRISAT's African research program be substantially expanded. The nature of this research effort (whether to be organized around one or more "subcenters" or whether to be based on mobile regional networks of scientists working directly with national programs) was subject to some discussion. The first review recommended the first model, though conceded that an experiment station might be needed for a millet research and farming system research program. After the first review, debate continued on the model for ICRISAT's African program. ICRISAT's Board found it necessary to balance its own objectives with funding opportunities and the desires of specific donors. A subcenter was established in Niger and a several individual country projects were carried out. The second external review called for a major reassessment and consolidation of ICRISAT's research efforts in Africa. There also appeared to be a consensus that the appropriate model for the African program should consist of a mix of several components: a regional center a base for the West African efforts, additional

experimental site(s) for sorghum and groundnut work, and a regional network model for activities in Eastern and Southern Africa.

The second external review was in a position to evaluate the impact of ICRISAT's program in addition to reviewing the basic research strategy.

The second review concluded that the crop research programs were basically on track and that the institute had begun to make a substantial impact on productivity in several regions through the development of new varieties. The review also carried the theme that ICRISAT should move more toward basic research activities, especially in the understanding of the basis of pest and disease resistance and on the climatic tolerance of crops.

The second review felt that the Farming Systems Research Program (FSRP) needed to be consolidated and more focused and yet at the same time suggested additional areas for research. The Board pointed out this apparent contradiction. TAC's view was that the FSRP needed to place more emphasis on the development of methodologies that could be transferred to national research programs. The location specificity of FSRP work on component technology development was viewed as a major limitation of this program.

A third key issue addressed by the second review was the African program of ICRISAT. The review felt that this program needed to be reassessed with regard to the balance of activities in various parts of Africa and the need to place additional emphasis on Africa was stressed. The panel felt that the African program needed to be consolidated.

Finally, the external management review recommended that the structure of decision making at the institute be modified. Though the review characterized ICRISAT as a well-managed institute, it felt that management could further be enhanced by the further delegation of authority from the director general to other staff.

(d) Criticisms in the Review Reports

Both reviews characterized ICRISAT as a well-run institute that was effectively pursuing its mandate.

The most significant criticism of the second review was directed at the management of ICRISAT. The EMR criticized the lack of staff input into decision making. But the Board felt that the EMR had misrepresented this issue.

The EMR also suggested that representatives from national agricultural research programs be more involved in the planning of ICRISAT research programs and policy making.

Another criticism of the second external review was the organization of the research program. The panel felt that 400 separate research projects were too many to be effectively managed, focused, or coordinated. The Board disagreed, however, considering that this issue could best be determined by management.

The second review also criticized some projects that it thought were too "development" oriented, rather than research oriented. The Second EPR thought that the production of large quantities of seed for "minikit" trials in India was an inappropriate use of ICRISAT resources. But the Board felt that the institute needed to maintain program flexibility in order to be most effective, and did not seem to view these efforts as displacing national programs.

(e) Eliciting Staff Concerns

The dedication and competence of the staff were noted in both reviews.

The EMR noted a problem of status and salary distinction between national scientists and international scientists, which it described as "not healthy" and poor for morale (p 21-22). Poor communication between national and international scientists was also mentioned. The EMR made some recommendations to address these problems, but recognized that solutions may be difficult to implement in the short run.

(f) Research Organizational Structure

There are four commodity programs at ICRISAT: sorghum, millet, pulses (chickpeas and pigeon peas), and groundnuts. Each of these programs has scientists from several biological disciplines working under it. Both single and multi-disciplinary projects are carried out, with a predominance of the former.

The Farming Systems Research Program had six sub-divisions:

- (1) Agroclimatology
- (2) Land and Water Management
- (3) Soil Management
- (4) Farm Equipment
- (5) Cropping Systems
- (6) On-Farm Research

The economics program has four main study areas: (1) evaluation of resources (e.g. village and watershed studies); (2) technological assessment; (3) institutional appraisals (e.g., research allocation, marketing); and (4) behavioral studies (e.g., risk studies, household labor studies).

(g) Research Planning Process

The primary planning document is the ICRISAT 10 Year Plan, which was praised by the second external review as a comprehensive plan that effectively rationalizes and sets priorities for research. However, it felt that this plan did not adequately address management aspects of implementing these programs.

It was not clear from the reviews to what extent the economics research program had been involved in research resource allocation, though this is a specific part of their research program.

ICRISAT also carries out annual internal reviews for each of its main research programs. But from the questionnaire responses it seems that the internal review process may not be particularly effective.

The reviews noted excellent working relations between the director general and the Board of Trustees. The Board has been apparently quite active in research policy making. But also in the second review there is reference to short and superficial staff presentations on research programs at Board meetings. The Board had already noted this problem and planned to adjust its agendas appropriately to allow more indepth treatment of these issues.

(h) Interaction with National Programs

ICRISAT uses a host of tools to develop links with NARP's, including workshops, joint research projects, material and publications exchanges, and training. The closest linkages have been with the Indian NARP and with Indian Universities.

ICRISAT also enters into bilateral projects with individual countries. For example, a USAID supported bilateral project between ICRISAT and Mali involves the following activities:

- (1) testing of new varieties;
- (2) improving sorghum and millet based farming systems;
- (3) developing agricultural research stations;
- (4) training Malian scientists.

Two scientists from ICRISAT, a breeder and an agronomist, are assigned to Mali.

(i) Interaction with Other Institutions

On some specific projects there is research collaboration with universities in developed countries. For example, ICRISAT collaborates with millet BNF research with the University of Marburg and with Rothamsted Experiment Station (Second EPR, p 20).

ICRISAT has been involved with the private sector in the area of technology dissemination. This has occurred mainly with seed companies, but entirely within India (Second EPR p 16, 24). There was no mention of research collaboration with the private sector in the reviews.

5.8 THE IFPRI REVIEWS

Reviews:

EPR, 1984

EMR, 1984

(a) Panel Membership

EPR: 7 members

EMR: 2 members

(b) Panel Itinerary

EPR (1984)

Feb 6 - Feb 20: field visits to Philippines, Zambia, Kenya

Feb 23 - Mar 30: at IFPRI Center for meetings with staff and
report preparation

(c) Impact of Review

Since there has only been one review, it is difficult to judge its impact.

The response of the Board of Trustees to the EPR and the EMR recommendations, however, expressed no disagreements with the external review. The Board committed itself to try to implement almost all of the recommendations. One exception to this concerns a recommendation to form a new research "thrust" on Development Strategies. The Board agreed with this recommendation in principle, but felt there was a need to further clarify and define the research bounds of such a thrust before it could be created.

From questionnaire responses it is evident there was a high degree of satisfaction on the part of the scientific staff toward the review.

The overriding issue confronting IFPRI, according to the external review and reiterated by the Board, is the need for additional core funding to bring the size of the research staff up to the planned level and to reduce the reliance on insecure project funds. The external review strongly supported the institute's position in this regard.

(d) Handling Criticisms in the Review

There were virtually no negative comments in the reports on management or policy. The reports were highly complimentary of IFPRI's progress and the quality of its research. The main problem identified was the heavy reliance on special project funds. But the source of this problem was identified with a lack of adequate core funding support from donors, not with IFPRI management.

The panel did recommend new directions for research (i.e., the formation of a new research thrust) and interacted heavily with staff and management on the identification of an overall research strategy. It also recommended diversifying the staff into other social science fields (currently the staff are predominantly economists). But these recommendations did not take the tone of criticisms of IFPRI.

A couple of areas of potential criticisms are IFPRI's apparent bias toward market forces and its heavy reliance on technical change in agriculture as the driving force of development. The panel pointed out this bias but explicitly chose not to criticize it. However, the nature of some of the recommendations suggests a desire of some of the panel members for IFPRI to broaden its scope. For example, there were suggestions from the panel for conducting research on institutional reform and on market failures.

(e) Eliciting Staff Concerns

Personal interviews between EMR panel members and staff addressed this issue. Performance appraisal of staff members has been solely the responsibility of the DG with little or no feedback provided to staff on performance evaluation. Nevertheless, the external review noted excellent relations between the DG and all senior staff. In retrospect it appears that the review was not fully sensitive to some emerging problems in this area.

Scientific support staff (e.g., research assistants) were less satisfied, mainly because they did not feed part of the collegial atmosphere and there had been no opportunity for advancement within the institute.

The problem of limited tenure opportunities for senior research staff was noted but no recommendations for changes in personnel policies were made. The panel felt that the advantages of the current system (fixed term appointments) outweighed the advantages of moving to an indefinite term appointment.

(f) Research Organizational Structure

Research at IFPRI is organized into four "thrusts":

- (1) Food Consumption and Nutrition Analysis;
- (2) Food Production Policy Analysis;
- (3) International Food Trade and Security Analysis;
- (4) Food Trends Analysis (later changed to "Food Data Systems").

The external review recommended that a fifth area, on "Development Strategies", be added.

Within each thrust are a series of research projects. Though each research project is the domain of one or a few individuals, there appears to be a fair amount of interaction and discussion among colleagues at all stages of the project's life.

The formulation of research topics come from a variety of sources, namely: (1) requests from governments and institutions; (2) the interest and expertise of staff; and (3) special project contracts. Each project, however, must relate to at least one of the food policy "issues" developed in IFPRI's long range plan (see section g below for a list of these issues).

The central working hypothesis of IFPRI has been that research drives technological progress which is the main force behind increasing food production.

At the time of the external review almost all of IFPRI's senior staff were economists and IFPRI's analysis exhibited a noticeable bias in favor of market forces.

(g) Research Allocation and Planning

In 1982 a long range plan for IFPRI was developed. Six "working questions" were identified, which IFPRI believed defined the major food policy problems. These are:

What policies are needed to

- (1) respond to the rapid growth in food import demand in developing countries?
- (2) allow technical change to raise food production?
- (3) provide producer incentives that can achieve both growth and equity?
- (4) enable technical change to stimulate growth in income and employment necessary to alleviate rural poverty?
- (5) improve food security of the poorest people given income distribution problems, large fluctuations in production, and high storage costs of food?
- (6) --What commodities should be emphasized?

The panel commented on the nature of these questions and made several suggestions for modifications. It felt some questions were worded too narrowly. For example, it suggested expanding Q2 to read "what forms of public investment are needed to increase food production" rather than emphasizing only ag research and technical change. It also thought Q6 was too narrow, and suggested the question be expanded to include linkages between agriculture and other sectors of the economy and consider alleviation of urban poverty as well. It felt Q6 should not be a separate issue but incorporated into Q1, Q2, and Q3. Finally, the panel thought that a question needed to be added that dealt specifically with trade and development assistance issues.

Another issue facing IFPRI is the regional balance of its activities. Most of IFPRI's efforts have focused on Asia. The panel encourages IFPRI to devote more resources to Sub Saharan Africa. Less emphasis is given to Latin American countries. It is felt that these countries have greater domestic capabilities for food policy analysis.

The Board appears to be heavily involved in planning and in issues formulation at IFPRI. This is evidenced by the fact that all Board members are members of the Program Committee and there is on going discussion among Board members on whether to expand IFPRI's research activities into other areas.

(h) Interactions with National Programs

The main source of interaction with national ministries is through the policy studies that are done at the request of these governments. Several such studies have been done and they appear to have been quite influential. Such research studies are usually carried out in collaboration with national institutions.

IFPRI views direct participation by developing country professionals in collaborative research as the most efficient means available to IFPRI in building national food policy research capabilities. It recently developed a three year training plan aimed at enhancing national capacities through such collaborative projects. This plan gives special emphasis to food policy research in Sub-Saharan Africa.

No formal training program exists at IFPRI. Training occurs informally through staff development. The short term nature of most appointments ensures a steady turn-over in senior staff, with old staff returning to their home countries or institutions. TAC's 1984 training impact study concluded that "the work of IFPRI therefore includes a significant training activity, even though it is informal and cannot be separated from the research of the Institute" (Annex 6 - G, p 2).

IFPRI also conducts several Policy Seminars each year which are held either at IFPRI or in client countries. These are used mainly to increase awareness of IFPRI's research results.

The panel does not suggest that IFPRI develop a formal training program. The panel seems to feel that the main responsibility for this activity rests elsewhere, such as with the UN University.

(i) Interactions with Other Organizations

IFPRI appears to be quite active in the CGIAR system. For example, it has cooperative research projects with IRRI on rice policy in South East Asia and with ICRISAT on policies affecting coarse grain production.

IFPRI seems to work best with those institutes that already have a strong socio-economic component to their research program.

The panel discouraged the idea of using IFPRI as a research planning body for the CGIAR system (e.g., to suggest how to allocate resources within the system). Such work would require significant input from biological scientists, not currently available to IFPRI. It may also inhibit effective collaboration between IFPRI and the other institutes on other research projects.

5.9 THE IITA REVIEWS

Reviews: EPR, 1978
 EPR, 1984
 EMR, 1984

(a) Panel Membership

First EPR: 13 members

France	NARP
USA (4)	academia: agronomy, plant sci, plant path, soil sci
Nigeria	academia
Australia	academia: economics
Canada	CIDA
Netherlands	academia: tropical agriculture
W Germany	academia
UK	NARP
CGIAR/TAC (2)	

Second EPR: 11 members

UK	NARP
W Germany (2)	academia: ag sci, social sci
USA (2)	academia: plant breeding, ?
Brazil	
Mexico	
Tanzania	
CGIAR/TAC (2)	

EMR: 4 members

(b) Panel Itinerary

First EPR (1977)

May 12-18 & Oct 16-21: visit to IITA field activities and NARP's
 in Tanzania, Zaire, Sierra Leone, Liberia, and Nigeria
 Oct 23-29: at Center for staff briefings
 Oct 30-Nov 4: at Center for report writing and presentation

Second EPR (1984)

Sep 14-16: at Center for orientation
 Sep 16-20: visits to IITA field activities and NARP's in
 Cameroon, Nigeria, and Upper Volta
 Sep 21-30: at Center for staff briefings
 Oct 1-7: at Center for report writing and presentation

(c) Impact of Reviews

Overall, it appears that the impact of the reviews on IITA management and program policy has been limited. There were several major issues that were addressed in the First EPR and then again reiterated in the Second EPR and the EMR:

- (1) lack of direction and structure to the Farming Systems Research Program (First EPR, p 32-33; Second EPR, p 44; EMR, Annex 7);
- (2) IITA involvement in "development" projects (First EPR, p 89; Second EPR, p 55-56);
- (3) Personnel management problems at several levels (First EPR, p 83; EMR, p 18-22).

Below, these criticisms are expanded upon.

Another example of lack of impact concerns IITA-CIAT friction over collaboration on cassava research. Both institutes have mandates for cassava research, and plant disease problems limit material transfer from Africa to Latin America. Nevertheless, to avoid duplication of research programs, close cooperation is a desirable objective. There was an initial agreement between IITA and CIAT in 1973 defining areas of responsibility, but apparently it was not adequate to cover concerns. Both the First EPR of CIAT (1977) and the First EPR of IITA (1978) pointed out the need for a new agreement and suggested guidelines for such an agreement. This led to a 1978 agreement but which again failed to resolve differences. The Second EPR of CIAT (1985) made special note of the friction and recommended immediate communication on the matter between the DG's or submission of the issue to a third party. But it is interesting to note that the Second EPR of IITA, conducted a year earlier (in 1984) made no mention of any such friction, despite a TAC request to make inquiries into this specific issue and records of meetings with CIAT cassava researchers in the review report. The Second EPR of IITA merely states that CIAT and IITA collaborate on cassava research. (ref: First EPR, CIAT, p 24; First EPR, IITA, p 47-49; Second EPR, CIAT, p 127-129; Second EPR, IITA, Annex 1, p 5, question #18 and acknowledgements, p 84, and p 22).

The impact of the reviews on IITA's program were also limited by the severe financial crisis that shook IITA in the early 1980s. Severe shortfalls in funds caused major changes in programs and staffing. Some recommendations were initially implemented but later had to be abandoned. For example, the First EPR recommended agronomic research be transferred to the Farming Systems Research Program. This was initially carried out but later these agronomy positions were eliminated from IITA (Second EPR p 45).

(d) Handling Criticisms in the Reviews

The First EPR gave several recommendations for specific program directions but generally was very positive toward IITA. It noted some lack of structure to the Farming Systems Research Project, but attributed this mainly to the newness of the methodology. It suggested several organizational options for this program.

The Second EPR was more direct with what it felt were some shortcomings of IITA's program (praising what it considered successes as well).

The Second EPR gave considerable attention to "mandate" issues, questioning:

- (1) IITA's involvement in "development" projects rather than research projects, claiming these efforts were not only outside the jurisdiction of IITA but that they were displacing, rather than assisting, NARP's (e.g., IITA's involvement in large scale application of biological pest control methods) (Second EPR, p 11, p 55-56).
- (2) IITA's expansion into research in semi-arid areas, stemming from an overlap between its crop mandate (which included cowpeas) and its ecological zone mandate (which limits IITA to the humid and subhumid tropics) (e.g., cowpea projects in Upper Volta) (Second EPR, p 67).
- (3) IITA's lack of coordination of maize research with other research institutions, and the resulting duplication of efforts (e.g. IITA, CIMMYT, and SAFGRD all had international maize testing programs operating independently in the same regions) (Second EPR, p 17).
- (4) IITA's failure to decentralize its research program beyond Nigeria to a sufficient degree and what the panel considered to be excessive overhead costs of center operations.
- (5) IITA's failure to use core funds for training activities, which the panel felt suggested a lack of commitment to this activity.

Referring to the CIAT-IITA cassava dispute detailed in the previous section, the lack of reference to this issue in the Second EPR of IITA suggested the panel may have overlooked or avoided this issue.

Though strongly supporting the role and concept of Farming Systems Research at IITA, the Second EPR criticized the program on the following points: (1) lack of structure (p 44); (2) lack of interdisciplinary research (p 44, 46); (3) lack of appropriate statistical tools (p 45); (4) poorly managed on-farm research (p 49); and, (5) over concentration on Nigeria (p 46). But the panel did not suggest any fundamental changes to the FSR concept or objectives.

The EMR noted that external auditor recommendations for strengthening internal financial control at IITA in its reports for 1977, 78, 79, 80, 81, and 82 never received action from the Board or from Center management. The external auditors indicated a lack of physical control over stores, inappropriate authority for check signatories, etc. The EMR suggests possible financial mismanagement at IITA: "the nature and importance of the shortcomings noted in the (external auditor) letters make it impossible to be assured that no assets of the Institute have ever been misappropriated" (p 33, see also Annex 6, p 32-33).

The reviews noted the extraordinary circumstances that IITA have faced because of its location. For example, the second review justifies a higher than normal Center overhead expenses because of the need to provide basic services, including electricity, sewage, and water supplies, the need to provide housing and recreational facilities for staff, and the need to maintain large stores of spare parts and equipment. Financial pressures on

IITA were also exacerbated by large exchange rate losses. Lack of good local support staff for research was cited as a serious limitation on the research program.

The EMR, however, goes on to make direct criticisms of management on the following:

- (1) lack of adequate internal financial control (see above);
 - (2) poor internal communication between scientists (p 23-24);
 - (3) poor personnel policies, on senior staff recruitment and on relations with support staff (p 18-22);
 - (4) autocratic management style of the director general and his failure to involve staff in major decisions (p 12-13);
 - (5) apparently weak role played by the Board of Trustees (p 5-6).
- The EMR pointed out it was impossible to evaluate the role of the Board because the recorded minutes of their meetings were of very poor quality.

(e) Eliciting Staff Concerns

The EMR made mention of several key personnel issues:

- (1) It refers to "highly unpleasant" past episodes with local support staff (p 18) but does not elaborate. It recommends more deliberate steps be taken to improve labor relations, and lists several specific suggestions.
- (2) Special needs of expatriate staff were noted, including the need for special recreational facilities, the unmet need for educational facilities for their children, and the concerns of spouses (who are often highly educated) about lack of productive employment opportunities. But staff turnover rates were not judged to be excessive (p 20).
- (3) The EMR also pointed out the autocratic style of the DG, but does not indicate that this translates into a staff morale problem.

(f) Research Organizational Structure

IITA operates four major research programs, each fairly independent of one another. There does not appear to be much interaction between the programs and the bulk of the research effort seems to be carried out on a single disciplinary basis. The four programs are:

- (1) CIP - Cereals (maize and rice);
- (2) TRIP - Tubers and Roots (cassava, yams, sweet potatoes, and aroids);
- (3) GLIP - Grain Legumes (cowpeas and soybeans);
- (4) FSRP - Farming Systems Research.

The commodity programs contain breeders, agronomists, and crop pest specialists (entomologists, pathologists, and nematologists) along with some chemists and microbiologists. Research work focuses on (1) biological technology (e.g., breeding) and (2) crop management (e.g., multiple cropping and biological pest control).

The FSRP consumes about 40% of the research budget and the management of this program has come under criticism in all reviews (see earlier sections for details).

The organization in the FSRP was not clear from the reviews. It is subdivided into three subprograms: (1) Soil and Land Management, (2) Crop Management, and (3) On-Farm Research. But, according to the Second EPR, this organizational structure is "descriptive and has little administrative importance" (p 30). More important seems to be the nine categories of "research activities":

- (1) regional analysis;
- (2) component technology development;
- (3) land clearing;
- (4) soil management;
- (5) minimum tillage;
- (6) farm machinery;
- (7) multiple cropping;
- (8) alley cropping;
- (9) on-farm adaptive research.

Each of the four crop Programs contain multiple cropping programs, along with the Farming Systems Research Program. The interaction between these efforts, if any, was not made explicit in the reviews.

(g) Research Budget Allocation and Planning Process

Program leaders receive annual budgets, determined by the DG. In this sense the budget allocation process has been strictly top-down. Then each program develops its research plan. Overall program orientation or individual research projects need not be defended. "Planning is heavily dependent on individual initiative of unit heads and Program leaders" (Second EPR, p 70).

The IITA Board of Trustees has appeared to play a passive role in management and planning.

Though the ten year plan prepared by IITA (for the 1980s) identifies the direction each program plans to follow, it appears that internal mechanisms for planning and evaluation have been lacking. (Ref: Second EPR p 70-71; EMR p 16-17).

(h) Interactions with National Programs

Shortcomings were identified in the reviews concerning IITA's involvement with NARPs. The panel criticized the lack of core funds committed to training programs and the direct involvement in development projects. According to the review, this kind of activity tended to displace rather than complement NARP activities. However, pressure to generate additional funding sources through special projects and the realities of the limited ability of many NARPs to effectively absorb IITA generated technologies, were identified as the chief reasons for the involvement in development projects.

Also, IITA was criticized for not devoting more resources outside of Nigeria.

It should be noted, however, that even though core funds have not been allocated to training programs, these programs are still quite substantial and the number of participants increased significantly from the late 1970s to the early 1980s (from around 200 per year to around 400 per year). In addition, the total IITA program outside of Nigeria is quite large, though again not core funded. As of 1982, 23 scientists were posted in seven cooperative projects outside of Nigeria and \$8 million in additional projects were under negotiation.

(i) Interactions With Other Institutions and the Private Sector

No mention of private sector contact or with developed country institutions was indicated.

5.10 THE ILCA REVIEWS

Reviews: 1st EPR, 1982
 2nd EPR, 1986
 EMR, 1986

(a) Panel Membership

1st EPR: 8 members

UK
 US academia
 France academia
 W Germany NARP livestock
 Australia NARP livestock
 FAO livestock
 CGIAR/TAC (2)

2nd EPR: 9 members

Denmark academia economics
 US Winrock
 Australia NARP
 Argentina NARP
 Botswana (UK) NARP
 Kenya NARP
 FAO
 CGIAR/TAC (2)

EMR: 4 members

(b) Itinerary

1st EPR

Phase 1 (1981)

Sep 22 - Sep 24: at ILCA Center for meetings with staff
 Sep 26 - Oct 8: visit to field activities in Nigeria, Mali

Phase 2

Nov 18 - Nov 21: visit to field activities in Kenya
 Nov 22 - Nov 21: visit to ILCA Center and field activities in
 Ethiopia

Nov 17: meetings with Ethiopian NARP and International
 Organizations

Nov 28 - Dec 4: report writing and presentation

2nd EPR

Phase I (1986)

Jan-Mar: at ILCA Center where two panel members met with Board
 Mar 28 - 30: visit to field activities in Mali
 Apr 1 - 2: at ILCA Center and visits to Ethiopian field
 activities

Phase II

May 6 - May 14: at ILCA Center for meetings with staff, further visits to
Ethiopian and Kenyan field activities
May 14 - 20: at ILCA Center for report writing and presentation

(c) Impact of Reviews

The first external review (1981) identified several serious program and management problems at ILCA and made a list of major recommendations aimed at focusing the research program, improving staff quality and moral, and improving management practices. The review also noted that many of ILCA's problems were due to the internal instability in the host country at the time. This was still an important consideration at the time of the second review (1986) as well.

The first review criticized what it felt was a lack of direction to ILCA's program. The review attributed this to confusion within ILCA over the interpretation of "systems research", and as a result of too much emphasis being placed on the zonal programs relative to the center program.

The program and management at ILCA underwent significant and generally positive changes following the first review, according to the second review. The actions taken by the ILCA management during this period were generally consistent with the recommendations, though in some cases the changes went beyond these recommendations. For example, while the first review recommended that six senior staff members be added to the center research program, ILCA in fact added thirteen senior research staff positions during the 1981 to 1986 period. Also, the reorganization of the center research program was more extensive than envisioned in the first review. The new organizational structure of the research program is reported in part (f) below.

The first review noted that significant tensions existed between the Board of Trustees and the institute DG. This was apparently the result of Board interference in center management combined with an authoritative management style of the DG. The first review made a series of recommendations to improve this relationship, including attempting to clarify the appropriate roles of each party. These problems were still present in 1986, according to the second review, even though the personalities involved had changed.

Between the reviews, ILCA deemphasized its zonal programs in order to build its center program. This was consistent with the recommendations of the first review. The headquarter facilities had been successfully upgraded, according to the second review. The second review felt it was now appropriate to begin to direct more resources to building the zonal programs.

(d) Handling Criticisms in the Reviews

The first review strongly criticized ILCA on several grounds. Most importantly, the review felt that ILCA had not adequately identified production constraints, and had in some cases moved ahead with "interventions" without adequately testing them.

The first review criticized both the center and the zonal programs. The zonal programs lacked resources and staff quality was often poor. The center program was small and also understaffed, unable to provide adequate support to the zonal programs.

The first review, though critical of ILCA, probably understated the seriousness of the problems facing the center. In fact, at the time of the first review, there were significant frictions within management, a serious shortage of qualified scientific staff, and the center was close to bankruptcy. The extent of these problems becomes clearer in the second review, when the history and progress of the center is traced out.

These problems had largely been resolved by the time of the second review, with two major exceptions. Serious frictions still existed between the Board and DG, and the zonal programs lacked adequate facilities and leadership, according to the second review. However, the criticism of the zonal programs should be evaluated in light of the explicit decision to concentrate on building the center-based research program, as recommended by the first review.

The second review (EMR) was especially critical of the Board of Trustees. It was dissatisfied in the Board's procedures for selecting and evaluating the DG, which they felt was the paramount responsibility of the Board.

The second review was also critical of strategic planning at ILCA. It did not feel that the long range plan developed by the DG was of sufficient detail to be used as a policy and management tool. The second review was also concerned that ILCA may be overextended in its program.

However, the second review concluded that there existed at ILCA a viable research process that was capable of developing usable technologies. This was not the case at the time of the first review, and represents a major achievement of management.

It is my impression that the standards applied by the reviews to the evaluation of African institutes, such as ILCA, have not been as demanding as the standards applied to institutes located outside of Africa. This would stem from a recognition that problems facing the agricultural research community in Africa are more intractable, with less previous research to draw upon and with less human capital and infrastructure to support technology development and dissemination.

(e) Eliciting Staff Concerns

The first review mentioned a serious problem of isolation felt by off-center staff. ILCA was operated in a decentralized manner, with its main research programs carried out in several locations in addition to the center headquarters (e.g., in Nigeria, Mali, Kenya, and off-center sites in Ethiopia). More recently it has become more centralized, devoting more resources to center activities.

The first review was critical of staff recruitment and promotion policies. Lack of staff confidence in personnel policies, resulting in poor morale, was cited.

The second review (EMR) noted substantial improvements in these areas, and noted the dedication and high morale of the staff. Recruitment had become international, staff policies clarified, and management less secretive.

Insufficient housing in Addis Ababa was noted as a remaining staff problem, and housing at field units was of significantly poorer quality than center housing. Limited long-term career prospects and a lack of job security were also concerns of ILCA staff.

(f) Research Organization

In 1986, the research programs at ILCA were reorganized. The Department of Research is now comprised of five divisions. The first three are center-based research programs. The fourth division consists of supporting units for center research programs. The fifth division groups the zonal (off-center) research programs, which are located in Mali, Nigeria, Kenya, Ethiopia, Niger, and Botswana.

The subject areas of the research divisions are as follows:

- (1) Animal Science
 - nutrition
 - reproduction and health (includes trypanotolerance network)
 - husbandry and breeding
- (2) Plant Science
 - forages
 - soil science and plant nutrition
 - pastoral ecology
- (3) Livestock Economy
 - policy analysis
 - micro analysis
- (4) Research Support
 - soil and nutrition labs
 - aerial mapping

(5) Zonal Research

- rangelands (Kenya, Ethiopia)
- highlands (Ethiopia)
- humid zone (Nigeria)
- sub humid zone (Nigeria)
- arid and semi-arid zones (Mali, Niger, Botswana)

The trypanotolerance network in the Animal Science division was given especially high marks in the second review. This work is closely associated with the program at ILRAD.

Structurally, the research program appears to be single disciplinary oriented and the links between center research and the zonal programs are not explicit. However, there appears to be significant interaction between center staff and the zonal research staff.

(g) Planning Process

The DG prepared a long term strategy report in 1986 which calls for a significant increase in ILCA's staff and budget over the next five years. The second review (EMR) did not believe that this report was adequately focused to be an effective management tool. The EMR stressed the need for a clear articulation of the rationale for the research program and for a strategic plan of sufficient detail to help guide resource allocation and project selection.

ILCA has hosted annual "Team Leaders Conference" that has functioned as an internal review. The EMR criticized the annual conferences, however, as being hurried and not sufficiently structured. There was a need for more involvement of staff and Board members in strategic planning, according to the EMR. The EMR suggested a CIP- or IITA-like annual review process be put in place.

(h) Interactions with NARP's

The main modes of interaction with NARP's are:

- (1) training programs, including a post doc program;
- (2) zonal stations;
- (3) information services.
- (4) research networks.

The second review was especially complimentary of the progress made in the quality of the information and documentation services at ILCA.

Also, some technical backstopping services have been made available to some NARP's, such as Botswana and Zimbabwe.

(i) Interactions with Others

ILCA has been innovative in developing working relationships with some private voluntary organizations in technology dissemination. The interaction has occurred mainly in Ethiopia. It is viewed as one means of overcoming gaps between research, extension, and development efforts, especially in pastoral East Africa.

5.11 The ILRAD REVIEWS

Reviews:

1st EPR, 1981
 2nd EPR, 1986
 EMR, 1986

Definitions:

Trypanosomiasis: a tsetse-born cattle disease
 Trypanosome: protozoan parasite causing Trypanosomiasis

Theileriosis: a tick-born cattle disease
 Theileria: protozoan parasite causing Theileriosis

(a) Panel Membership

1st EPR: 9 members

France	NARP
U.K.	(2) academia, parasitology; NARP
U.S.	academia, medicine
W Germany	academia, parasitology
Nigeria	academia
Belgium	academia, tropical medicine
CGIAR/TAC	(2)

2nd EPR: 8 members

Belgium	academia, tropical medicine
Nigeria	academia, veterinary science
USA	academia, biology
UK	academia, parasitology
Netherlands	academia, veterinary science
W Germany	academia, veterinary science
CGIAR/TAC	(2)

EMR: 2 members

(b) Panel Itinerary

1st EPR

Oct 6 - Oct 14: at ILRAD Center for meetings with staff;
 also had meetings with Kenyan Ministries,
 ICIPE lab, and visited field sites
 Oct 15 - Oct 17: at ILRAD Center for report writing and
 presentation

2nd EPR

Phase I:

- Dec 4: at ILRAD Center for Trypanotolerance Network internal meeting--heard presentations on trypanotolerance research in 10 African countries
- Dec 5 - Dec 6: at ILRAD Center for Theileriosis program internal review
- Dec 7 - Dec 8: visits to ILRAD facilities and Kapiti cattle ranch
- Dec 9 - Dec 10: at ILRAD Center for Trypanosomiasis program internal review
- Dec 12 - Dec 13: field trips to Senegal/Gambia, Kenya's coast province

Phase II:

- Jan 12 - Jan 14: in Kenya, visits to ICIPE, Kenyan NARP
- Jan 15 - Jan 28: at ILRAD for meetings with staff and management, report writing and presentation

(c) Impact of Reviews

1st EPR

Overall, the 1st EPR appeared to have a significant and positive impact on ILRAD. Recommendations made by the 1st EPR were far ranging and can be grouped into 7 categories:

- (1) Research Management;
- (2) Research Priorities for Trypanosomiasis Program;
- (3) Research Priorities for Theileriosis Program;
- (4) Supplying Animals for Research;
- (5) Administration;
- (6) Training and Communication.

(1) Research Management

The 1st EPR identified the Board-DG conflict as a major problem at ILRAD and made a series of recommendations to alleviate this problem. The 1st EPR called for an end to interference of the Board in management and the careful recruitment of a new DG. It laid out guidelines to delineate the respective responsibilities of the Board and DG and recommended that the Scientific Advisory Committee be abolished. These recommendations were implemented. However, it is not clear whether the EPR correctly identified the source of this conflict, as another possible source of conflict was the Director's Advisory Committee, which the 1st EPR thought should remain in place.

The 1st EPR also recommended the program structure be changed to a project basis. This was implemented. A matrix structure was adopted, meshing six project areas with six laboratories. Note: the 2nd external review recommended another structural change -- see section f below.

A recommendation not implemented dealt with a suggestion to lengthen staff contracts. Management considered this recommendation, but concluded that the current system was not a constraint to staff recruitment or performance. The 2nd EPR concurred with the management's decision.

(2) & (3) Research Priorities

ILRAD considered each recommendation made by the 1st EPR concerning research priorities, but modified its research plan as new knowledge and information was obtained.

(4) Supplying Animals for Research

At the time of the 1st external review, ILRAD was interested in purchasing a large cattle ranch in order to have a regular supply of quality livestock for research purposes. ILRAD management used the 1st EPR as a way of generating TAC support for the purchase of the cattle ranch by explaining the need to the panel, and showing them the proposed site. The 1st EPR recommended that the purchase be made and TAC subsequently approved.

(5) & (6) Staffing and Administration

Again, each recommendation was implemented. Some of these dealt with adding or filling staff positions. Others dealt with properly maintaining equipment.

(7) Training and Communications

The bulk of these recommendations dealt with increasing ILRAD's attention to training activities.

ILRAD increased its training budget 10 fold between the 1st and 2nd external reviews (from \$100,000 to \$1 million). However, most of ILRAD's training activities fall under the category of graduate and post-graduated research (\$500,000 of the training budget is for post graduate research fellowships). Relatively few resources are devoted to workshops or short courses, or to deliberate efforts to build NARP research capacities. The 2nd EPR reiterated the need to emphasize training activities.

2nd EPR

The Board appeared to have a favorable reaction to most of the recommendations made by the 2nd EPR.

It agreed to diversify its trypanosomiasis research strategy to include both chemotherapy and trypanotolerance research, as recommended by the 2nd EPR.

It endorsed the 2nd EPR's suggestions that ILRAD continue its commitment to both basic and applied research. The 2nd EPR seems to place a greater emphasis on basic research, though this is not explicitly stated.

The 2nd EPR also listed priority areas for the theiliosis program; namely, development of sporozite antigen-based vaccine, and immunization methods. The Board accepted these program recommendations.

The Board was hesitant about expanding its training program. It took the position that other agencies had greater responsibility in this area.

The Board was critical of the panel's suggestions for new or expanded endeavors without suggesting which part of the existing program should be curtailed to free resources for these new activities. For example, the panel recommended that research be conducted on heartwater disease, another tick born animal ailment. The Board estimated it needed 5 new staff positions and \$2 million for new lab facilities to implement all of these recommendations, including those concerning the proposed heartwater program.

The Board indicated that the institute's long term planning paper (ILRAD 1984-1993. The Plan for the Second Decade) would be updated in light of the 2nd EPR.

EMR

The EMR suggested a new structure for the research program (see section f). The Board agreed to implement the new structure over time, after further study of procedural details.

The EMR recommended that the two top positions directly under the DG (the Director of Administration and the Director of Research) be selected by the DG with Board approval rather than vice versa, as is the current practice. The Board flatly refused to relinquish this power.

The EMR recommended a staff-based committee structure be adopted to set institute policies (i.e., to increase staff involvement in management). The Board was cool to this idea and decided to leave this matter up to the DG's preference and style.

The EMR recommendations for new or improved facilities were accepted in principle by the Board but would only be implemented if new funds became available.

The Board also felt that some EMR recommendations (e.g., concerning relations with African countries and with NARPs) were not realistic. The Board felt that the panel members did not fully appreciate the real constraints involved.

Questionnaire responses suggested that the report of the second external review has not been made available to all of the scientific staff.

(d) Handling Criticisms in the Reviews

Overall, the 2nd external review reports are more complimentary of ILRAD than the 1st review, though the 1st review also expressed general satisfaction with ILRAD. Much of the tone of the 2nd review can be attributed to the significant progress that had been achieved by ILRAD since the 1st review, especially in overcoming the deficiencies noted in the 1st review.

It is also apparent that the 2nd review panel members were satisfied that ILRAD had evolved into a world class research institute, and cited its good journal publication record and reputation with outside scientists.

Deficiencies or problems were by and large indicated in a straight forward manner.

From the questionnaire responses, there is some evidence of tension between the panel and the center management. One scientist commented that management was highly defensive in its attitude toward the review and discouraged the scientists from discussing issues outside the research program with the review team. Some scientists indicated they felt that the review team had a "secret agenda". There was no evidence of this tension in the panel report.

(e) Eliciting Staff Concerns

The problem of recruiting senior scientists and of providing opportunities for career advances were only touched upon in the 1st EPR but dealt with in depth by the 2nd review. Both of these issues were identified as problems needing more attention. These are recurring themes in the reviews of the IARCS. Though seen as problems, the external reviews usually do not recommend changes in tenure policies because alternatives are seen to carry still greater disadvantages.

Also recommended was a greater use of a committee structure for management. Perhaps this reflected a concern among staff of a lack of participation in management, though this concern was never explicitly stated in the reviews.

(f) Research Organizational Structure

The research program has a matrix structure around research labs (which are disciplinary based) and projects (multidisciplinary and problem oriented). Service labs also support project research and carry out some independent research.

The following comprise the six research labs:

- (1) parasitology (trypanosome);
- (2) biochemistry;
- (3) cell and molecular biology;
- (4) immunology;
- (5) parasitology (theileria);
- (6) pathology.

ILRAD groups its research projects into six "project areas", three of which refer to trypanosomiasis research and three to theileria research. But the review team felt that this organizational structure was administrative in nature, commenting that "project areas accommodate some rather illsorted subjects" (p 15) and were "rather diffuse" (p 28).

The second review suggested several changes in the organization of the research program. In addition to recommending a formal structural delineation between the trypanosomiasis and theileria research activities, the second review suggested increasing the number of project areas to more accurately reflect research strategy. Their grouping system more closely resembles the problem area "thrust" idea.

Trypanosomiasis research activities were grouped by ILRAD into three "project areas": (1) epidemiology; (2) antigenicity, biochemistry, and immunology; and (3) trypanotolerance.

The second review suggested regrouping the projects in the Trypanosomiasis program into five areas:

- (1) epidemiology studies -- the genetic, biochemical, pathological bases of trypanotolerance;
- (2) biochemistry and molecular biology of trypanosomes;
- (3) diagnostic aids;
- (4) chemotherapy;
- (5) factors controlling trypanosome growth and their relevance to immunization.

The first two project areas (or "thrusts") are basic research areas and seek to elicit long run solutions to the trypanosome problem.

The third project area seeks to develop applied technologies that can be used in the field to aid in the diagnosis of specific pathogenic species. It has a short- to medium-term focus.

Project areas iv and v represent the two major short- to medium-term strategies for controlling trypanosomiasis. The chemotherapy thrust develops and tests drugs that can kill the protozoan infected animals while doing little damage to the host. Thrust v seeks to develop vaccines that will render cattle immune to the protozoan.

The Theileria program is organized into three major project areas:

- (i) epidemiology studies;
- (ii) sporozoite vaccine development;
- (iii) schizont vaccine development.

Project area i includes mostly short- and medium-term projects, such as field testing the "infection and treatment" method, assessing the extent of antigenic diversity, and characterizing theileria strains for their immunity properties (important since being immune to one strain does not necessarily imply immunity to other strains).

Project areas ii and iii are the two major areas for medium- to long-term solutions to the theileria problem. Sporozoite vaccines induce antibody production that attacks the protozoan before it enters the host cell. Schizont vaccines induce cell immunity, attacking the protozoan after it enters the host cell.

The panel considered sporozoite vaccine development to be more promising than schizont vaccine development and noted that the former was receiving less funding than the latter. But the panel stopped short of recommending that resources be diverted away from the schizont program to the sporozoite program. ILRAD management felt that it had allocated as many resources to this program as could be effectively absorbed at that time.

Overall, the panel urged that ILRAD continue to conduct research in both short-term and long-term areas. Research on theileria tended to be more short and medium term, as the possibility of an early breakthrough is greater when compared to the trypanosome problem. The panel also suggested ILRAD expand into some other areas, namely, into heartwater disease, another tick born animal ailment.

Note: all of ILRAD's research projects are focused on the trypanosome and theileria protozoans. None look at alternative means of controlling these diseases, such as attacking the carrier (the tsetse and ticks). That approach to disease control has been the domain of ICIPE, another international research institute (also located in Kenya) but outside the CGIAR system. The external reviews noted good communication between ILRAD and ICIPE.

(g) Research Allocation and Planning Process

The main tools for planning appear to be (1) annual internal reviews; and (2) outside consultants.

Previous to the 1st EPR, the role of the Board was apparently quite strong. Unhealthy friction existed between Board and management.

This problem was identified by the 1st EPR and subsequently the Board's role in ILRAD strategic planning became virtually nil (in the opinion of the 2nd EPR). The 2nd EPR identified two major reasons for an ineffective Board in program determination:

- (1) infrequency of meetings; and
- (2) lack of appropriate expertise on the Board.

At the time of the 2nd external review, no social scientists were employed at ILRAD. The 2nd EPR encouraged ILRAD to conduct some impact studies. But the impact research that was suggested tended to be fairly technical in nature (i.e., the impact of immunization research on cattle productivity and mortality rates). But more recently ILRAD has embarked on a more ambitious "impact" program. By the end of 1986 ILRAD expects to have two or three full time scientists investigating the social, economic, and environmental impact of animal disease control techniques in Africa.

(h) Interactions with NARPs

ILRAD is closely involved with the Kenyan NARP. This occurs mainly through the "Nairobi cluster", which includes the University of Nairobi and some international organizations as well as Kenyan livestock ministries.

In particular, ILRAD collaborates with Kenya's Veterinary Research Lab for field testing and sample collection.

Involvement in The Gambia occurs through research collaboration with the International Trypanotolerance Center in Banjul.

The Trypanotolerance Network links ILRAD to NARPs in 13 African countries. ILCA is the main coordinating body. The purpose is to study the productivity and health of various breeds of cattle in different locales under different management regimes.

Training programs emphasize individual graduate or post graduate research. Candidates are selected jointly with NARPs. But it doesn't appear that much attention has been devoted to evaluating long term needs of NARPs and of incorporating those needs into its training programs.

The 2nd EPR characterizes ILRAD's activities with NARPs outside of Kenya as "inadequate".

(i) Interactions with Other Organizations

ILRAD is quite active in collaborative research with institutes in developed countries, particularly with European research institutes. Some of these studies appear in practice to be like contract research, with funds originating at ILRAD but being carried out entirely at the other institution. The extent of the collaboration on these projects was not made explicit.

ILRAD works with FAO on applied research projects on trypanosomiasis and coordinates its work with WHO to avoid duplication of efforts.

ILRAD apparently has had some connections with the private sector. ILRAD has made use of cattle records supplied by May and Baker, Ltd., for research on the effect of chemoprophylaxis of cattle productivity.

5.12 THE IRRI REVIEWS

Reviews: First EPR, 1976
Second EPR, 1982

(a) Panel Membership

First EPR: 9 members

India
USA (3)
Netherlands
UK (2)
Australia
Japan

Second EPR: 11 members

Brazil	NARP
Japan (2)	academia
Indonesia	NARP
USA	academia
India	academia
Sierra Leone (expatriate)	
Netherlands	academia
CGIAR/TAC (3)	

(b) Panel Itinerary

First EPR (1975)

Nov 23-29: visits to NARP's in Thailand and Indonesia
Nov 30-Dec 8: at Center for staff briefings
Dec 9 -12: at Center for report writing and presentations

Second EPR (1982)

Nov, 1981: one member visited IRRI activities at WARDA and IITA
Jan 3 - 8: visits to NARP and IRRI regional staff in Indonesia
Jan 11-17: at Center for staff briefings
Jan 18-23: at Center for report writing and presentation

(c) Impact of Reviews

The First EPR contained many program and staffing recommendations, but there are few references to this report in the Second EPR. Undoubtedly the Board and management took these recommendations under consideration but did not feel bound by them. For example, by the time of the Second EPR, IRRI had not hired a nematologist as recommended by the First EPR. The Second Review, however, concurred with this management decision (p xxiv).

Both reviews take an in-depth look at the research program and strategies and are fairly forward looking, especially the Second EPR. By far the majority of recommendations deal with additional areas of research for IRRI, though some effort is given in the Second EPR to suggesting research priorities for programs.

The Second EPR contains a response from the Board to the Review (p ix-xii). The overriding tone of the response is that these additional areas for research would be desirable but they would require additional funding resources (currently unavailable), suggesting that the Board did not see these recommendations as high priority areas warranting diversion of existing resources.

A particular personnel policy was criticized in both the First and Second EPR's and received no action from the Board or management (see section e below for details).

In the Second EPR there is also the general recommendation that IRRI continue to move in the direction of devoting more resources to basic research programs.

(d) Handling Criticisms in the Review

Given the secure stature of IRRI as a premier research institute, there appeared to be a greater willingness on the part of the panel to make critical analyses of research programs and activities. Furthermore, there is less of a need to evaluate research programs, as international credibility has already been established.

Both reviews are strong endorsements of the IRRI program and strategy, and many recommendations are fairly nebulous in that they use words like "increase" or "strengthen" in reference to an existing effort. It is understandable that there is a reluctance to offer changes in a program that has been highly successful.

However, there are some important exceptions to this in the Second EPR. Specifically, it recommends that the International Rice Testing Program be curtailed (it is not cost-effective). This is one of the few examples in the review of any institute where a panel has recommended program curtailment, except in a few cases where a program appeared to fall outside of the institute mandate.

(e) Eliciting Staff Concerns

The EPR's seemed effective at eliciting major staff concerns. Both noted the high morale of center staffs. But both also noted a significant problem of off-center staff. Unlike CIP, IRRI does not use core funds for salaries and to support its off-center staff but rather uses fixed contract funds. Furthermore, off-center staff are not considered members

of specific IRRI academic departments. As a result, off-center staff feel isolated and insecure in their career prospects. The First EPR was especially critical of this personnel policy (p 68), and contained specific recommendations for alleviating this problem. The Second EPR reiterated this concern (p 111). No explanations from IRRI appear in either report, but undoubtedly the policy stems from budgetary expediency.

(f) Organizational Structure of Research

The single commodity focus of IRRI enables an indepth description of the organization of research by the EPR's. Initially, the key IRRI strategy was to use improved germplasm to increase rice productivity in Asia. Research "Thrusts" were formed according to identified "problem areas", and were matrixed with disciplinary departments (note similarity with CIP) to form multidisciplinary teams. IRRI now places greater emphasis on crop management research and has integrated the social sciences into the research program more effectively than any other institute.

But the Second EPR cautions that this "matrix" style organization could become cumbersome if the number of problem areas were to increase (as will probably be the case if IRRI assumes a greater role in research on rainfed and upland rice and in rice research outside Asia).

(g) Research Budget Allocation and Planning Process
(Ref: Second EPR, p 107-110)

IRRI uses annual internal reviews involving all scientific staff and some consultants to set yearly research agendas. The duration of this review has expanded from one to two weeks and each year some programs are explored in greater depth.

The role of the Board of Trustees has significantly increased in the planning process from a passive to an active role. This change apparently occurred after 1979. Examples of this increased activity include (1) establishment of additional permanent Board committees; (2) attendance at the internal review sessions by some Board members (this is not consistently the case, however); and (3) more involvement by Board members in personnel and special project selection.

The role of social sciences at IRRI in the planning process is probably the most deliberate of the IARC's. One of the "Thrusts" is devoted to rice production constraint and technology impact research. This information is available to and used not only by IRRI's scientists and management, but also to policy makers, extension leaders, and other scientists throughout Asia (Second EPR, p 63-67). Constraints research focuses on (1) quantifying yield gaps; (2) identifying social, institutional and environmental constraints; and (3) identifying crop management practices, in several Asian countries. Consequences research employs (1) village studies, (2) Philippine country level models, and (3) inter-country comparison studies, as tools.

But note: IRRI does not appear to employ representatives from NARP's in its planning process or deliberately try to coordinate its research program with the NARP's.

(h) Interaction with National Programs

IRRI employs the following modes of interaction with NARP's:

- (1) involvement in International Research Networks, (e.g., IRTP, INSFFER, IRAEN, AMN, ACSN);
- (2) posting of regional liaisons (IRRI staff posted directly in developing countries to facilitate relations with those NARP's);
- (3) collaboration with specific countries on research and training projects.

Furthermore, IRRI training programs include:

- (1) the research component of advanced degree programs;
- (2) a series of upper level non-degree programs involving the work of all the research "Thrusts";
- (3) postdoc appointments;
- (4) conferences.

But the bulk of IRRI's training activities appear to be on-site rather than in host countries.

(i) Interaction with Private Sector and Other Institutions

One of the few instances of private sector involvement with IARC programs is noted with regards to IRRI's Machinery Development Program. IRRI maintains patents on machinery development but gives local manufacturers the right to produce equipment (Second EPR, p 74-75).

Previously, IRRI apparently was involved with some private sector firms in pesticide testing (First EPR, p 24) but this was later reduced to a minimum level.

There is also evidence of some research collaboration with institutions in developed countries (UK, USA, Japan, W Germany). This collaboration dealt with specific tasks on basic research, and did not appear to be used widely.

5.13 THE ISNAR REVIEWS

Reviews:

EPR, EMR in 1985

(a) Panel Membership

EPR (7 members)

USA	academia
Zimbabwe	NARP
Chile	NARP
Pakistan	NARP
Australia	NARP
CGIAR/TAC	(2)

EMR (2 members)

Canada
U.K.

(b) Panel Itinerary

EPR and EMR

Phase I: Aug 22 to Sep 3, 1985

A series of country visits by various panel members to Columbia, Dominican Republic, Sri Lanka, Indonesia, Rwanda, Kenya.

Phase II: Sep 3 to Sep 20

Meetings at ISNAR with staff and management, and report preparation.
Interaction between EPR and EMR panels.

(c) Impact of Reviews

The external review's main conclusion was that ISNAR had adequately fulfilled the expectations during its "trial" period and should now be considered a full-fledged member of the CGIAR.

One set of recommendations were directed at the management of ISNAR. The aim was to improve the organizational structure of the institute's program and to institutionalize long range planning.

Another set of recommendations dealt with the program content. The panel encouraged ISNAR to increase its research program (i.e., to conduct more "research on research") and to increase its commitment to follow-up activities in its dealings with NARPSs.

The Board essentially agreed with the recommendations and remarks of the external review. In fact, in the first year following the review, almost all of the recommendations have become operational.

(d) Handling Criticisms in Report

The panel was highly complimentary of ISNAR's progress and the review focused on the strategic issues facing the institute.

The panel endorsed the strategy followed by ISNAR during its "trial period". This was essentially to rely on a staff with significant experience in working with NARPs to gain a knowledge base on a wide range of national agricultural research systems. A good deal of the success of ISNAR was attributed to the strong leadership of the DG who maintained centralized control over the program.

According to the review, it was now appropriate for ISNAR to institutionalize its experience and program, and suggested several ways to decentralize the organization of the program.

In addition, the panel recommended that ISNAR should develop a coherent long-term plan, something it had not done during the trial period.

The panel also urged ISNAR to devote more resources to training and research. In particular, it suggested that ISNAR conduct research on research management and organization. Its main criticism of ISNAR's program was that ISNAR was weak on how it went about suggesting how NARP's set their research priorities and evaluate their programs. Specifically the panel felt ISNAR had not made use of economic tools in suggesting how to set guidelines for research resource allocation.

The EMR expressed some concern with the personnel evaluation system, since all personnel were receiving the same grade (i.e., "excellent") during each annual appraisal.

(e) Eliciting Staff Concerns

Both the EPR and EMR noted the high staff morale and quality of staff at ISNAR.

No staff concerns were indicated, though the EMR hinted that salaries might be too low and suggested that five grades of staff positions be established to provide for career development at ISNAR. It is not clear, however, whether these concerns expressed in the EMR were the result of conversations with ISNAR staff or independently arrived at by the panel.

(f) Organizational Structure

The EMR suggested some organizational alternatives to decentralize management and program. This has since been accomplished by ISNAR's management.

(g) The Planning Process at ISNAR

A key element of the external review was the need for ISNAR to develop a coherent strategy for its efforts, i.e., strategic planning at ISNAR had not been formally conducted.

The external review also envisioned a greater role for the Board in setting future policy at ISNAR.

These recommendations have been implemented by ISNAR.

(h) Interaction with NARPs

ISNAR appears to be held in high regard by the NARPs it has dealt with and there is a high demand for its services.

An ISNAR project with a national program begins with a visit from an ISNAR team (made up of ISNAR staff and additional consultants) to identify program constraints. National scientists are consulted at all stages of a project so that real constraints can be identified and viable suggestions made. The design and elaboration of a system building strategy constitute the "project development" stage. Finally, ISNAR continues to provide follow-up advice and assistance during project implementation, which is carried out on the initiative of the national program.

(i) Interactions with Other Institutions

In ISNAR's initial mandate, a close working relationship was envisioned between ISNAR and other IARC's, FAO, and donors. The external review suggested that the mandate be modified to clarify the position of ISNAR with respect to these other institutions.

The initial mandate suggested that ISNAR had certain responsibilities toward other IARCs in addition to NARPs. ISNAR did not develop close working relations with other IARCs as this proved not feasible in practice. ISNAR has focused on the research management process at the national level, especially on research policy, research organization, and research management. Its role tends to be independent of the activity of the other IARCs. The suggested changes to the mandate eliminated the references to the relationship with other IARCs and assured that ISNAR was an institute of equal standing.

No clear deliniation of responsibilities existed between FAO and ISNAR and apparently some competitiveness has existed in the past. The panel felt ISNAR had a clear comparative advantage in assisting in NARP institutional development, stemming from being a part of the CGIAR system and being entirely focused on this one issue. In addition, ISNAR has recently been collaborating successfully with FAO several projects (e.g., planning of activities in Ethiopia, Uganda, and Panama).

5.14 THE WARDA REVIEWS

Reviews: First EPR, 1979
 Second EPR, 1984
 EMR, 1984
 Mid-Term Review, 1986

(a) Panel Membership

First EPR: 5 members

US	academia: economic
France	NARP
CGIAR/TAC (3)	

Second EPR: 7 members

Brazil	NARP
US	
Tanzania	NARP
Netherlands	
UK	academia: plant pathology
CGIAR/TAC (2)	

EMR: 2 members

Mid-Term Review: 9 members

USA*	academia (chair of Second EPR)
Brazil*	NARP
Philippines*	academia
Ivory Coast*	academia: economics
Turkey	academia: financial management
W Germany*	academia: agric policy
CGIAR/TAC (3)	

* indicates a TAC member

(b) Panel Itinerary

First EPR

Aug 30 - Sep 1: at WARDA Center for staff meetings
 Sep 2-9: visits to special projects and NARP's in Sierra Leone,
 Mali (and Ivory Coast after Sep 17)
 Sep 10-16: at WARDA for staff meetings and report writing

Second EPR (1983)

Jun 11 - 15: at WARDA Center for staff briefings
 Jun 16 - Jul 6 & Sep 9 - 25: visits to special projects, field activities, and NARP's in Gambia, Senegal, Upper Volta, Ivory Coast, Nigeria, Mali
 Sep 26 - Oct 7: at WARDA Center for more staff briefings, report writing and presentation

Mid-Term Review

Apr 13 - 21: visit to special projects and field activities in Ivory Coast and Senegal
 Apr 22 - May 2: at WARDA Center for meetings with management and report writing

(c) Impact of the Reviews

The reviews had limited impact on WARDA management, policy, and program. Political and financial pressures on WARDA management tended to dominate program and personnel decisions. Furthermore, management deficiencies added to the problem. For example, the First EPR recommended greater attention to long range planning and the addition of economists to the special project multidisciplinary research teams. This was not carried out and little in the way of forward planning appears to have been initiated.

Some progress was made implementing the Second EPR and EMR recommendations both in the way of a more sharply focused research program and in more effective management (p viii and x of the Mid-Term review).

But the Mid-Term review concludes that the most important structural constraints to an effective institute remained, and recommended a new institutional arrangement for rice research in West Africa be implemented (i.e., that WARRI be established).

(d) Handling Criticisms in the Reviews

There is a sharp contrast in the characterization of WARDA between the First EPR and the later reviews.

The First EPR appears to have glossed over some major structural deficiencies, though it did point out the serious financial problems resulting from a failure of many West African states to live up to their funding commitments. In fact the First EPR commends the organizational structure to be a success (p 6, p 59).

The most severe criticism of WARDA came from the EMR of the second review. It identified (1) inadequate financial controls and accounting systems; (2) politicization of staff recruitment practices; (3) serious

management deficiencies (unproductive administrative staff, friction between anglophone and francophone contingents, poor staff morale) and characterized the management as "passive administration" rather than "active management".

(e) Eliciting Staff Concerns

See comments in par (d) concerning staff friction and poor staff morale. The First EPR made no mention of poor staff morale, instead commenting on what it felt was a good quality research staff.

(f) Research Organizational Structure

WARDA is unique in its structure in that it incorporates both research and development components, along with training services. Furthermore, its research program is highly decentralized with core programs in Liberia and four special project stations located elsewhere in West Africa. Each of the special project sites is staffed with a small multidisciplinary team.

Association with WARDA probably has given the scientists at these sites a greater sense of belonging and more support. But financial strain has limited contact, i.e., travel budgets have been significantly curtailed.

This research structure was based on the assumption that existing technology could be rapidly disseminated in the region without much adaptive research being required. The first review recognized that this assumption was overly optimistic and emphasized the need for a greater commitment to adaptive research (p 10). Later reviews recognized this as well and the Mid-Term review recommended a complete overhaul of the rice research program in West Africa, creating a regional rice research institute without "development" responsibilities and the structural limitations of WARDA.

(g) Planning Processes

No formal planning process has been in place and research program budgeting has been dominated by uncertain and irregular funding, along with management deficiencies.

(h) Interaction with National Programs

The modes employed by WARDA include (1) training activities; (2) provision of material for varietal testing; (2) the four special projects, which appear to be housed at NARP stations.

5.15 STRIPE REVIEW OF FARMING SYSTEMS RESEARCH

Sources: Stripe Review Report on Farming Systems Research, 1977
FSR (at the IARCs) Workshop Report, 1986

Purpose of Review

The rapid growth in Farming Systems Research at several IARCs in the early 1970s was cause for TAC to authorize a critical review of these activities. This was the first across-center analysis of a particular topic (Stripe review).

The review was to provide a descriptive account of FSR at four of the IARCs (IITA, ICRISAT, CIAT, and IRRI). It was also to review FSR methodology at the IARCs and provide appropriate guidelines for the conduct of these activities at the centers.

But before summarizing the content and impact of the Stripe review, it is worthwhile to comment on the nature of FSR within the CGIAR system, as discerned from the program reviews, the 1986 workshop report, and other sources.

Two Competing Views on FSR in the IARCs

There appear to be two competing philosophies concerning the concept of Farming Systems Research in the IARCs. The main distinctions between these views are outlined below:

First View: characterized by programs at CIP, CIAT, CIMMYT, and IRRI

The focus of FSR is research methodology development. The key component of the FSR research program is to diagnose farmers' needs when planning research programs and when identifying intervention strategies. A secondary component is to strengthen the linkages within the research program: across commodities, between institutions, and between research and extension. Ramifications of this approach are multidisciplinary interaction and the use of on-farm trials.

Second View: characterized by programs at IITA and ICRISAT

The focus of FSR is to develop new farming systems (technologies), e.g., the vertisol technologies studied at ICRISAT and the IITA research on systems to replace the bush/fallow system. This approach has generally been unsuccessful, as it is difficult to transfer prototype technologies.

Impact of FSR Stripe Review

The recommendations tended to be quite broad in nature and appeared to have very little or no direct impact on the scope or direction of FSR at the IARCs, except to reaffirm the existence of such research in the CGIAR

system. It was not critical of FSR programs at any of the institutes and at no point questioned the relevancy of FSR.

The review failed to distinguish between the competing views on FSR outlined above. Instead, the review defined FSR in broad terms, attempting to be all inclusive. According to their definitions of FSR, it is difficult to think of a research program that could not be characterized as FSR, except perhaps a single-disciplinary basic research program.

The review's main impact appears to have been to provide an impetus for further discussion of FSR among IARC scientists. Since the time of the 1977 Stripe review, FSR has undergone significant changes at several of the institutes and has become more focused. FSR activities have increased significantly at CIP and CIMMYT. Though CIAT dropped its formal farming systems program, the methodological characteristics of FSR are fully incorporated in its commodity research programs. Most importantly, there is a consensus building among most of the IARC scientists as to what constitutes the essence of FSR (along the lines of the 1st group's philosophy outlined above). ILCA, ICARDA, and the African part of ICRISAT are developing their FSR programs along these lines.

The development of this consensus can be traced to a series of meetings between IARC scientists. These meetings were probably motivated by the 1977 Stripe review. The first meetings were informal but they have progressed in structure and inclusion. The most important meetings that contributed to the consensus building are given below.

- 1979: Canada, at the Int'l Ag Econ Meeting
 - some IARC scientists held an informal meeting on FSR issues
- 1980: Mexico
 - IARC economists met to discuss on-farm research
- 1984: East Africa
 - IARC scientists involved in African programs met to discuss FSR
- 1986: ICRISAT
 - 10 IARC's sent representatives to a Workshop on FSR

Several references were made to the 1977 Stripe review in the 1986 Workshop Proceedings. It appears that this review report was still used as a basic reference for FSR work at the IARCs. So, though the direct impact on FSR programs at individual institutes was slight, it appeared to have an indirect impact in that it initiated a series of meetings that have clarified FSR at many of the IARCs and has provided a common reference point on which to base these discussions.

5.16 STRIPE REVIEW OF OFF-CENTER ACTIVITIES

Report: Stripe Review on Off-Center Activities, 1980

Purpose of Review

The key issue that led the CGIAR secretariate to commission this Stripe review was that the off-center activities of the international centers were growing very rapidly, and demands from client countries were increasing. The review was to study:

- (1) the rationale for off-center activities, and to identify types of such activities;
- (2) the optimal size and duration of off-center activities, and the proper balance between off- and on-center programs;
- (3) the views of NARP's and donors toward off-center activities;
- (4) the effect that the establishment of ISNAR would have on the off-center activities of other IARCs;
- (5) the collaboration between centers, regional networks, with FAO and other organizations on these types of programs;
- (6) possible alternatives to off-center activities.

Abstract of the Review

Though the review identified seven categories of off-center activities, these can be summarized into the following four areas:

- (1) germplasm collection, preservation, and utilization (including the international testing programs);
- (2) collaborative research projects with NARPs (including involvement in regional networks);
- (3) training;
- (4) consultancies.

The review concluded that these activities were a natural extension of center programs and it was often difficult to make sharp distinctions between on- and off-center activities.

The panel felt that an increase in off-center activities is part of the natural maturation of an institute, and that these programs could be expected to increase further. The review gave no suggestions on what might

be an optimal balance. The report only cautioned that the IARCs should stick to their mandated topics.

The demand from client countries for specific services, particularly consultancies on NARP management and operations issues, would probably decrease with the creation of ISNAR. However, demand for assistance on technical issues would probably remain strong.

Impact of the Review

The main output from the review was to give a broad overview of the type and trends in off-center activities in the CGIAR system. But no specific recommendations were made. The issues identified above (Purpose of Review) were only addressed in very general terms. Many of these issues were not addressed in sufficient detail to be meaningful. It is doubtful that this review had much of an impact of the nature or amount of off-center activities being conducted by the IARCs.

The general lack of a critical tone in this review is clearly illustrated in its failure to address the significant problems facing many of the regionally based scientists employed by the IARCs. Several external program and management reviews have cited major morale problems of these staff resulting from a feeling of isolation from the center and from insecure tenure. But no mention was made of this problem in the stripe review, except for a brief reference that regional staff would like to have more visits from center program leaders.

5.17 STRIPE REVIEW OF TRAINING ACTIVITIES

Source: Stripe Review Report on Training, 1985

Purpose of Review

Several key issues were identified in the terms of reference that dealt not only with the training programs at the IARCs but also with the general issue of agricultural manpower needs in developing countries. The team was to study and assess the training programs at the IARCs, including an evaluation of their content, costs, and impact. They were also to propose future directions for these training programs and identify the types of training activities that IARCs can best pursue and the optimal size of the training component of an IARC program.

There were two components to the study. The first was a study of the IARC training programs. The team visited all centers and 18 developing countries and conducted extensive interviews with IARC staff, training program participants and NARP managers. The second component focused on the training needs of national agricultural systems. Six in-depth country reports were prepared for this part.

Abstract of the Review

The study was a thorough descriptive account of past and current training programs at the IARCs. It gave specific recommendations for the types of training programs most appropriate for the centers, the conduct of training, monitoring their impact and effectiveness, stabilizing the funding for training, and the additional capital facilities needed for training at the centers. The summaries of the training programs at specific institutes in the Stripe review were more detailed than the sections on training in the external program reviews. One apparent exception was with the training programs at ICARDA. The external review had been conducted a year before the Stripe review on training. This external review revealed serious deficiencies in the ICARDA training program. No such problems were indicated in the Stripe review, although the Stripe review did note that a director of training had just been appointed at ICARDA.

The training needs of developing countries were investigated. This analysis was fairly cursory except for the six country studies that were conducted. It was recognized that the IARCs can only fulfill a small fraction of the manpower needs of the agricultural sector of these countries. National Agricultural Programs looked upon the training contribution of the IARCs quite favorably, and it was apparent that demand for these services greatly exceeded supply. However, there were some indications of a lack of awareness of IARC programs among some NARP managers.

The training programs were recognized as being one of the key mechanisms for establishing links between the centers and the NARPs. Center scientists have maintained contact with training program participants and these individuals often collaborate later on research projects, material exchange, and are an avenue for disseminating research results.

The review team was critical of the secondary role given to training programs, behind the importance attached to research programs, at the IARCs. They noted that during times of budget pressures, training programs were usually cut first, and training programs often relied more heavily on special project funds. The team suggested that a part of core funds be restricted to the training program.

Monitoring of the training programs had been inadequate, according to the review. The panel made specific recommendations on how these programs could be monitored for effectiveness and impact.

The review was also forward looking in a broad sense and suggested new avenues that training programs at the IARCs could take in the future. The panel argued that the training and research programs should be given equal importance, rather than the current policy of always basing training on research and dispersing training functions amongst the research staff. This position was reflected not only in the recommendations concerning the funding of training programs, but also on the content of training courses. The panel urged the centers to develop new, more appropriate curriculum materials so as to reduce the West/North bias in current agricultural science literature.

TAC appeared cool to this suggestion, however, reaffirming the centers' premier responsibility with research.