APPENDIX I

PANEL COMPOSITION AND BIOGRAPHICAL INFORMATION

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BIOGRAPHICAL INFORMATION

FLAVELL, Richard B. (UK)
Position: Chief Scientific Officer, CERES-INC., USA.
Expertise: Plant molecular genetics, plant genomics and plant breeding.
Education: Ph.D. in Fungal Genetics, University of East Anglia (1967); B.Sc. in Microbiology, University of Birmingham (1964).
Experience: Present position since 1998. He currently also holds an adjunct professorship at University of California, Los Angeles. 1994-98: Director, John Innes Centre, Norwich Research Park, Colney, Norwich, UK, and Professor of Biology, University of East Anglia, Norwich, Norfolk; 1990-94: Chairman of the Management Board, John Innes Centre; 1988-94: Director, John Innes Institute; 1969-88: Plant Breeding Institute, Trumpington, Cambridge; 1969-72: Scientific Officer; 1972-75: Senior Scientific Officer; 1975-81: Principal Scientific Officer; 1981-85: Grade 6 (Individual Merit Promotion); 1985-88: Head of Department of Molecular Genetics. Founded the Department of Molecular Genetics, which grew to include over 60 scientists investigation a broad range of topics in plant science; 1967-69: Department of Biological Sciences, Stanford University, California, USA. Fellowship awarded by Jane Coffin Childs Foundation for studies on fungal biochemical genetics. He has contributed much to the development of plant molecular biology, including development of the first transgenic plants. He has revealed many features of gene expression in several systems, of the molecular basis of cytoplasmic male sterility in maize and been a leader in gathering much novel information on the structure of cereal genomes. Throughout his career he has contributed significantly to the development of modern biotechnology in agriculture. He has been involved in many scientific activities including membership of various Boards,

including Strategy Board of the BBSRC in the UK, and editorial duties such as Associate Editor, Molecular Biology and Evolution, and Editor of Plant Molecular Biology, Genes and Development, Environmental and Experimental Botany, BioEssays and The Plant Journal. He has served as elected President of the International Society for Plant Molecular Biology. He is also an elected member of EMBO and Fellow of the Institute of Biology. He is a Fellow of the Royal Society of London and was made a Commander of the British Empire by Queen Elizabeth II for services to science.

GRIFFITH, W. John (Australia/US)
Position: Company Director
Expertise: Governance, finance, organizational change, and general management.
Education: B.E. (Civil) ('65); MBA ('70), Program for Management Development, Harvard Business School (1986); Corporate Board Effectiveness, HBS (1996).
Experience: 1966-74: Line positions in engineering, oil refining and commercial banking; Management Consultant, McKinsey & Company; 1974-97: The World Bank: Chief Financial Officer, Multilateral Investment Guarantee Agency (MIGA); retired in 1996. Since 1997: Chairman of the Board, Holy Cross Health System, and member of other Boards; participated in EPMRs of: ICIPE, CIMMYT, ICRISAT, IPGRI, CIFOR, WARDA, CIP, and ISNAR.

HAMBLIN, Ann Patricia (Australia/UK)
Position: Visiting Fellow, Centre for Resource and Environmental Studies, Australian National University, Canberra.
Expertise: Natural resources research and management in semi-arid and sub-humid agricultural systems, integration of agricultural with environmental management, specialist in soil-plant-water relations. Environmental and sustainability indicators at national and international scales, and for rural issues of developing countries (Africa and East Asia).
Education, Honours: Public Service Medal of Australia (2001); Ph.D. in Soil Science, University of Reading, England (1975); M.A., University of Cambridge, England (1970); M.Ag.Sc. in Soil Science, University of Reading, England (1966); B.A. in Geography, University of Cambridge, England (1963).
Experience: 2001-onward: see above; 1998-2001: Divisional Director and Principal Scientist, Bureau of Rural (previously Resource) Sciences Canberra; 1994-98: Director, CRC for Soil and Land Management, Adelaide; 1989-94: Principal Research Scientist: Bureau of Resource Sciences, DPIE, Canberra; 1985-89: Principal Research Scientist, CSIRO, Division of Plant Industry, Perth, W.A.; 1981-85: Research Scientist, Plant Research Division, Western Australian Dept. of Agriculture; 1976–81: Postdoctoral Research Fellow, Dept. of Soil Science & Plant Nutrition, University of WA; 1972-75: Research student, Ministry of Agriculture, Fisheries and Food, Cambridge; 1971-72: Fellow and Tutor, Girton College, Cambridge; 1968-70: Research Officer, University of Adelaide, S.A.; 1967-68: Demonstrator, Flinders University, S.A.; 1963-64: Field Officer, Field Council of Great Britain.
Other Activities: Panel Member 5th EPMR International Institute for Tropical Agriculture (2001), Member, Sustainable Agriculture Working Group, China Council for International Cooperation on Environment and Development (1997-2001); Board of Trustees, International Fertilizer Development Centre (1994-2004); Director, Horticultural Research and Development Corporation, Australia (1997-2000); National Coordinator, Land Resource Indicators, State of Environment Reporting, Environment Australia (1996-98, 2000-1). Author/co-author of over 90 journals and books.

KROPFF, Martin J. (The Netherlands)
Position: Director General of Plant Sciences Group of Wageningen UR. This includes three organisations: Plant Research International, Applied Plant Research and the Department of Plant Sciences of the Wageningen University.
Expertise: Agricultural and environmental sciences, agronomy, agroecology, systems analysis and weed science.
Education: Ph.D. in Agricultural and Environmental Sciences, Agricultural University, Wageningen (1989).
Experience: Present position since 2001. 1993-95: Visiting Assistant Professor, Department of Agronomy, University of the Philippines, Los Banõs, Philippines; 1990-95: Systems Agronomist, Deputy Programme Leader Cross Ecosystems Programme, SARP Project Leader and Head of the Climate Unit at IRRI, Los Banõs, The Philippines; 1985-90: Agroecologist, Department of Theoretical Production Ecology, Agricultural University, Wageningen; 1984-85: Scientist, Department of Air Pollution, Agricultural University, Wageningen. 1995-2001 Professor of Crop and Weed Ecology, Head of the Chairgroup, Wageningen Agricultural University and Scientific director of the C.T. de Wit Graduate School for Production Ecology and Resource conservation of the Wageningen Agricultural University.
Other professional activities include: 1995: Chair of the internally managed External Review of Crop Management Research in WARDA; 1991-94: Project Leader of the Asian research network on modeling climate change effects on rice (EPA funded). Other responsibilities: Scientific Director, C.T. de Wit Graduate School for Production Ecology; Editorial Board – Weed Research, Netherlands Journal of Agricultural Sciences, and Agricultural Systems. President, European Weed Research Society; Chairman, Royal Dutch Society for Agricultural Scientists (KLV). Various post graduate courses, including: 1988-90: Development of Computer Aided Instruction Programmes for Practicals on Quantitative Crop Ecology, based upon dynamic simulation models for crop growth in cooperation with the Dutch company Courseware Midden Nederland; 1988-90: Lecturer in courses on Weed Science Wageningen, Gent (Belgium). Languages: Dutch, English and German, limited French.

MOON, Huhn Pal (Korea)
Position: Deputy Administrator, Rural Development Administration, Suweon, Korea.
Expertise: Rice breeding and genetics (application of anther culture techniques to rice breeding), hybrid rice, rice biotechnology.
Education: B.S. in Agronomy, Seoul National University (1964-71); M.S. in Crop Science, Seoul National University (1971-1974); Ph.D. in Genetics, University of California, Davis (1983).
Experience: Rice Breeder & Director General, National Crop Experiment Station, RDA (2002-03); Rice Breeder & Director General, National Yeong-nam Agricultural Experiment Station, RDA (2000-01); Rice Breeder & Director, Rice Breed. Division, National Crop Experiment Station, RDA (1994-99); Rice Breeder, National Crop Experiment Station, RDA (1984-94); Assistant & Associate Rice Breeder, Crop Experiment Station, RDA (1971-84). Editor & Executive Committee of the Korean Society of Crop Science and the Korean Breeding Society (1983 - 2003); Vice President (Editor-in-Chief) of the Korean Society of International Agriculture (1999-2002); Executive Vice President of SABRAO (2002-2005); Member of the Korean Academy of Science and Technology (since 2002); President of the Korean Breeding Society (2002-2005). Awards: Presidential Commendation; Scientific Research Award (1977; 1988); Academic Award & Varietal Award from the Korean Breeding Society (1991; 1999); Decoration from Korean Government (1999). Publications on rice breeding and genetics.

SIAMWALLA, Ammar (Thailand)
Position: Former President, Thailand Development Research Institute, Bangkok; currently Distinguished Scholar at same Institute.
Expertise: Economics
Education: B.Sc. in Economics, University of London; Ph.D., Harvard University.
Experience: Current position: Distinguished Scholar, Thailand Development Research Institute, Bangkok; 1993-96: Member, Technical Advisory Committee to the Consultative Group on International Agricultural Research; 1990-95: President, Thailand Development Research Institute, Bangkok; 1978-84: Research Fellow of IFPRI.

APPENDIX II

TERMS OF REFERENCE
FOR EXTERNAL PROGRAMME AND MANAGEMENT REVIEWS
OF CGIAR CENTRES

BACKGROUND

Context

1. The Consultative Group on International Agricultural Research (CGIAR) is an informal association of over 50 members that supports a network of 16 international research centres in agriculture, forestry and fisheries. The CGIAR aims, through its support to the Centres, to contribute to promoting sustainable agriculture for food security in developing countries. Because the Centres constitute the core of the CGIAR, the effectiveness of each Centre is crucial to the continued success of the CGIAR (as a System).

2. Each Centre is an autonomous institution operating within the mandate assigned to it by the CGIAR, and is governed by a legally constituted Board that has full fiduciary responsibility for managing the Centre. To ensure accountability in an essentially decentralized system, each Centre is expected to be responsive to the CGIAR, which provides financial support for its work.

3. The CGIAR has established a tradition of External Programme and Management Reviews (EPMRs) to provide a mechanism of transparency and accountability to the Members and other stakeholders of the CGIAR System. EPMRs are the joint responsibility of SC and the CGIAR Secretariat, and are conducted for each Centre approximately every five years. As each Centre is autonomous, EPMRs provide a measure of central oversight and serve as an essential component of the CGIAR's accountability system.

Integrated System of Reviews of Each Centre

4. Besides the EPMRs, Centre Commissioned External Reviews (CCERs) are undertaken at each Centre. These CCERs are commissioned by the Centre Boards to periodically assess the quality and effectiveness of particular aspects of a Centre's work. The terms of reference (ToRs) for each CCER are determined by the Centre, based on broad principles endorsed by the CGIAR at ICW95 (ref. document entitled *Improving the Quality and Consistency of CGIAR's External Centre Reviews*, dated October 24, 1995).

5. EPMRs complement the CCERs by providing a CGIAR-commissioned and comprehensive external assessment of the Centre's program and management, especially its future directions and the quality and relevance of its research. The ToRs for the EPMRs (which update the "standard ToRs" endorsed by the CGIAR at MTM95) are provided below. Guidelines for undertaking the reviews are issued separately.

TERMS OF REFERENCE

Objectives and Scope

6. EPMRs seek to inform CGIAR members that their investment is sound, or recommend measures to make it so. Members of the CGIAR and other stakeholders can be informed whether the Centre is doing its work effectively and efficiently. EPMRs are both retrospective and prospective; and help ensure the Centres' excellence, relevance and continued viability, and the CGIAR System's coherence. Each review is expected to be strategic in orientation and as comprehensive as the situation warrants.

7. The broad objectives of EPMRs are to: a) provide CGIAR members with an independent and rigorous assessment of the institutional health and contribution of a Centre they are supporting; and b) to provide the Centre and its collaborators with assessment information that complements or validates their own evaluation efforts, including the CCERs.

8. The EPMR panel is specifically charged to assess the following:

a) The Centre 's mission, strategy and priorities in the context of the CGIAR's priorities and strategies;

b) The quality and relevance of the science undertaken, including the effectiveness and potential impact of the Centre's completed and ongoing research;

c) The effectiveness and efficiency of management, including the mechanisms and processes for ensuring quality; and

d) The accomplishments and impact of the Centre's research and related activities.

9. The topics expected to be covered by the EPMRs are listed below.

TOPICS TO BE COVERED

A. Mission, Strategy and Priorities

- The continuing appropriateness of the Centre's mission in light of important changes in the Centre and its external environment since the previous external review.
- The policies, strategies, and priorities of the Centre, their coherence with the CGIAR's goals (of poverty alleviation, natural resources management, and sustainable food security), and relevance to beneficiaries, especially rural women.
- The appropriateness of the roles of relevant partners in the formulation and implementation of the Centre's strategy and priorities, considering alternative sources of supply and the benefits of partnerships with others.

B. Quality and Relevance

- The quality and relevance of the science practised at the Centre.
- The effectiveness of the Centre's processes for planning, priority setting, quality management (e.g., CCERs, peer reviews and other quality and relevance assurance mechanisms), and impact assessment.

C. Effectiveness and Efficiency of Management

- The performance of the Centre's Board in governing the Centre, the effectiveness of leadership throughout the Centre, and the suitability of the organization's culture to its mission.
- The adequacy of the Centre's organizational structure and the mechanisms in place to manage, coordinate and ensure the excellence of the research programs and related activities.
- The adequacy of resources (financial, human, physical and information) available and the effectiveness and efficiency of their management.
- The effectiveness of the Centre's relationships with relevant research partners and other stakeholders of the CGIAR System.

D. Accomplishments and Impact

- Recent achievements of the Centre in research and other areas.
- The effectiveness of the Centre's programs in terms of their impact and contribution to the achievement of the mission and goals of the CGIAR.

APPENDIX III

GUIDELINES FOR EXTERNAL PROGRAMME AND MANAGEMENT REVIEWS OF CGIAR CENTRES[52]

INTRODUCTION

1. External Programme and Management Reviews (EPMRs) of CGIAR-supported Centres are carried out in accordance with the process Guidelines outlined below and the Terms of Reference (TORs) issued separately. These guidelines were essentially drawn from those that governed the external reviews of Centres for many years. Some changes have been introduced primarily to make these Guidelines consistent with the current practices and recent changes in the CGIAR.

Each review is expected to be strategic in orientation and as comprehensive as the situation warrants. To be credible and acceptable, all reviews must strive to be objective, transparent and participatory. The reports must be direct, explicit and frank. These principles are observed throughout the review process.

2. Being a member of a review panel is usually an interesting and rewarding experience. Moreover, Centre management and staff generally welcome the opportunity to discuss with panel members their achievements, concerns and future plans. A healthy atmosphere of mutual respect and collaboration in the interchange of ideas is the key to the success of the review. It helps to ensure that the recommendations of the panel are realistic, are well understood by the Centre management and staff, and will be willingly, or even enthusiastically, implemented.

GUIDELINES

3. EPMRs are expected to maintain high standards of quality and rigor, and be conducted by an independent and objective panel. The EPMR is expected to assess the Centre in terms of its: mission and strategy, programme priorities; quality and relevance of its science; achievements and impact; and effectiveness and efficiency of management, as noted in the TORs.

4. It is inevitable that the conduct of a review requires the collaboration of numerous individuals; as well as a process that enables the various participants to collaborate effectively in a complex assessment that has to meet high expectations and tight deadlines. The main participants in an EPMR are: the EPMR panel Chair and members; the CGIAR Members, the Science Council and its Secretariat, and the CGIAR Secretariat; members of the Centre's Board, management and staff; the panel's support team of external consultants and resource persons from the SC and CGIAR Secretariats; and the Centre's many partners at the local, national, regional and international levels.

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[52] Revised in 2003

ROLES AND RESPONSIBILITIES

5. **The CGIAR, SC and the Secretariats.** The CGIAR establishes external review policies for the System, and EPMRs are conducted on its behalf, in accordance with the TORs endorsed by the Group. For each review, CGIAR Members are requested to propose Centre-specific issues for the panel to consider, and receive the review report. The SC commissions the EPMR generally according to the 5-yearly schedule. The SC and the CGIAR Secretariat are responsible for the coordination and management of the EPMR and provide guidance on matters of review design and panel composition, in consultation with the Centre's Board and management. The SC focuses on all programmatic aspects of the review, while the CGIAR Secretariat focuses on the governance and management aspects of the review.

6. Senior staff members of the SC and CGIAR Secretariats serve as resource persons throughout the review process. The SC Secretariat resource person accompanies the panel Chair and members during their visits to the Centre and occasionally on field visits. He/she provides substantive briefings on technical matters and on the recent developments in the CGIAR, compiles documents relevant for programme evaluation and assists the panel on process matters, including the logistical aspects of report preparation and production. The CGIAR Secretariat resource person compiles documents related to CGIAR governance and management and assists the panel in management aspects of the review. However, to help safeguard the EPMR panel's independence and objectivity, the Secretariats' resource persons are not normally expected to undertake substantive review, analysis or writing responsibilities on behalf of the panel.

7. **The Panel Chair, Members and Consultants.** The leadership and task management skills of the panel Chair are obviously critical, as are the expertise and experience of panel members. The Panel Chair is appointed by SC in consultation with the CGIAR Secretariat and the Centre. The Chair's involvement begins early on, when he/she is consulted regarding panel composition, and briefed by SC Chair about the review process and key issues and concerns regarding the Centre. Once the review is underway, the Chair is responsible for ensuring that the panel undertakes its assessment and completes the task in accordance with the TORs and Guidelines for EPMRs. Given the magnitude of the task, the complexity of the issues, the fact that many panel members may be unfamiliar with the CGIAR, the importance of maintaining dialogue with the Centre, and the need to produce a report that reflects the consensus of the panel, the Chair's task is a demanding one.

8. Because the report should reflect the judgement of the whole panel, all members of the panel are expected to contribute to all aspects of the review report. Staff provided by the Secretariats assist the panel Chair and members throughout the process, as appropriate. Consultants are also provided to the panel, as needed, for limited periods of time, for assessment of specialized areas. While these consultants and resource persons from the Secretariats (and sometimes a SC member) support the panel's efforts as members of a team, ultimately the panel is responsible for formulating the assessment and recommendations of the EPMR report.

9. **The Centre Board, Management and Staff.** The Centre's Board, management and staff play a crucial role in the conduct of the review. They are heavily involved in planning the review, and subsequently in organizing the review and preparing for the panel's visits to the Centre and to the field. Once the review is underway, it entails a significant degree of interaction between the EPMR panel and Centre staff, as part of a valuable two-way learning

experience. Throughout the process, the collaboration and inputs of Centre management and staff are essential for the review to run smoothly and for the report to be credible and acceptable.

10. **The Centre's Partners.** Representatives of national agricultural research systems (NARS), regional fora, bilateral and multilateral agencies, NGOs and the private sector are important partners of CGIAR Centres, and their input is considered essential for the viability of the EPMR review process. As part of the review, representatives of such organizations are consulted for their views on the Centre's strategy, programmes and collaboration. This may be through panel visits and/or meetings, as well as through questionnaires or interviews. The panel may also visit or contact managers and researchers from other CGIAR Centres and other relevant institutions with which the Centre collaborates. Such consultations are valuable as a means of assessing the Centre's role in the CGIAR and in the global context. Given the vast number of collaborators or potential partners of a Centre, such meetings must be limited. Their outcome is considered important, however, and is expected to feed into the panel's assessment of the Centre.

Panel Composition and Report

11. **Panel Composition.** The review panel is composed of experts in programme and management areas relevant to the Centre being reviewed who can carry out a comprehensive assessment and give the CGIAR their best judgement about the past performance and future potential of the Centre. The panel is expected to make an independent assessment based on its own observations and other information available to it, particularly the evidence provided through CCERs (see below).

12. The EPMR panel normally consists of five members, including the Chair. Panel members are generally selected for their ability to focus on the institution-wide issues relating to the Centre's mission, strategy, priorities, programmes and management. To ensure adequate coverage of the TORs, the panel composition usually meets the following requirements: a) the Chair and at least two panel members are familiar with the CGIAR; b) at least two panel members have a technical background relevant to the Centre being reviewed; and c) at least one panel member has expertise in institutional governance and/or research organization and management.

13. **Panel Report.** The EPMR report is expected to present an accurate account of the outputs and what is known about the impact of the Centre during the review period. It is expected that in-depth reviews of particular programme or management areas would have been undertaken earlier through CCERs - and would not normally need to be undertaken by the EPMR panel. This enables the EPMR panel to concentrate on the important strategic issues rather than on specialized detailed assessments of each programme, project or activity.

14. Because research in the CGIAR System is a long-term undertaking, the problems the Centre is working on may not have visible outputs until several years from now. For this reason, the review report is expected to provide convincing evidence on the quality and relevance of the completed and ongoing research, and the efficiency with which the work is conducted, as a surrogate measure of the potential impact of the Centre's current programme of work.

15. Although the EPMR report is expected to be comprehensive, the panel has considerable leeway in deciding on what issues it would focus in depth. The review report highlights the most significant issues faced by the Centre and makes recommendations on how the Centre (or the CGIAR) could address them. It provides assurances and convincing evidence to indicate that other aspects of the Centre's programmes and management (i.e., those not covered by the panel's report in depth) are effective and efficient. It also comments on the effectiveness of the Centre's internal review system on which the EPMR was based, and on how well the Centre has addressed the recommendations of the other reviews commissioned by the Centre.

Integration with Centre Reviews

16. It is expected that some detailed high-quality CCERs would have been completed within 2 or 3 years preceding the main phase of the EPMR. The CCERs are undertaken by specialized external consultants, assisted by members of the Centre Board and staff as resource persons (not participants). They are expected to cover at least portions of the Centre's main research programmes (including their relevance, direction, science quality, achievements, and, to the extent possible, impact) as well as aspects of Centre management (including governance, research organization and management, finance and human resource management).

17. The Boards would decide which CCER reports are made available, at the time of their completion, to the Panel. These reports are made available to the EPMR panel, along with reports of the follow-up actions planned or taken by the Centre's management and Board. Other analytical papers - particularly internal assessments of programme performance and impact - and other background documentation prepared by the Centre are also provided to the panel, at the discretion of the Centre. The Centre is responsible for providing this information in an easily accessible and usable form, so that the EPMR panel's conclusions can be based on a comprehensive and thorough review of all aspects of the Centre.

18. The CCERs - which are often very detailed and comprehensive - provide essential evaluative information to the EPMR panel on particular aspects of the Centre's programme and management. Their availability in advance of the initial phase of the EPMR helps create an integrated system of Centre- and CGIAR-commissioned reviews of each Centre, and enables the EPMR to be forward-looking and to focus more on strategic, rather than operational, issues.

19. The EPMR, then, can serve as a vehicle for analyzing, verifying, and synthesizing the information already available through CCERs and other reviews, and for making this information available to a wider audience outside the Centre. While the Centre's Board and management are responsible for ensuring that the internal evaluation system is sound (in terms of scope, coverage, quality and timeliness), judgements on the adequacy of a Centre's quality assurance system, including the processes for undertaking CCERs and other mechanisms of peer review, are the responsibility of the EPMR panel.

Board Assessment Visit

20. Interactions between the Centre Board and the panel form an essential component of every review, given the Board's important role in the CGIAR System. Hence, early in the process, prior to (or sometimes during) the first visit of the full panel to the Centre (see

below), the panel Chair along with a panel member or consultant specializing on governance issues attend a Board meeting, and interview Trustees concerning Board and Centre matters. This helps ensure the participation of the Board in the planning and design of the upcoming review, including the identification of key issues and concerns of relevance to the EPMR.

21. The visit also provides the panel Chair and selected members or consultant an opportunity to review the documentation provided to the Board, interact informally with individual Board members, observe at least one formal meeting of the Board and its committees, and serve as an element in assessing the Board's effectiveness and operations. The preliminary written assessment of the Board is made available to the panel (but not the Centre), and is modified as appropriate during the main phase of the EPMR (see below).

22. In assessing Board effectiveness and operations, the panel takes into account the key legal documents governing the Centre - particularly the Establishment Agreement, the Headquarters Agreement, and the Constitution of the Centre. It also keeps in mind the main provisions of the *Guidelines for CGIAR Boards* endorsed at MTM95, particularly the guideline on the "Role, Responsibilities and Accountability of Centre Boards of Trustees".

First Panel Visit and Briefing

23. Following the Board assessment visit (or sometimes coinciding with it), the full panel undertakes its first visit to the Centre headquarters for about one week for initial discussions with Centre management, staff and Board members (when the visit coincides with the meeting of the Executive or Programme Committees of the Board). This initial phase visit enables the panel to obtain an overview of the Centre's current activities and future plans, to identify strategic issues to be covered by the review team, and to prepare preliminary drafts of key sections based on an agreed outline of the report which will be completed during the main phase several months later. During the visit, and virtually before that, the panel receives detailed briefings from the SC Secretariat, from CGIAR Secretariat and Centre management on the recent developments in the CGIAR and the Centre being reviewed.

24. The briefing provided by the SC Secretariat resource person cover technical matters such as the CGIAR's mission, priorities, strategies, programmes and impact assessments and an overview of the recent development in the CGIAR. The CGIAR Secretariat resource person provides support to the briefing on management matters such as the CGIAR's governance, organization, finance and human resources. These briefings also cover the CGIAR's expectations regarding the scope and process of the review (as outlined in the TORs and Guidelines for EPMRs); as well as an overview of programme and management issues of relevance to the Centre being reviewed. The SC Secretariat resource person also provides substantive and process-oriented support as requested by the panel Chair. He/she serves as the panel Secretary.

25. The panel then receives briefings from Centre management and senior staff on the Centre's strategy, priorities, programmes, governance and management. These briefings focus particularly on the Centre's recent developments and achievements, CCER findings and conclusions, and future plans. In addition, the panel seeks additional information from other Centre staff, on a selective basis, as needed; and invites Centre staff members, either individually or in small groups, to voluntarily share their concerns, if any, regarding Centre-wide programme and management issues.

26. To help ensure that these briefings and discussions are as comprehensive and up-to-date as possible, and to enable the panel to obtain a comprehensive overview of the Centre's work, the Centre is expected to make available for the SC Secretariat and panel members, in advance of the first visit, the recent CCERs and other assessments undertaken, as well as other relevant Centre-related documentation (such as the latest Strategy document, Medium Term Plan, Programme and Funding Request, and other relevant policy documents or analytical papers prepared by the Centre). Many of these documents are off the shelf, and do not need to be especially prepared for the EPMR. The Centre can also be requested to provide short documents on strategy and vision, detailed documents on outputs and achievements, measures of esteem for professional staff, and other documents requested by the panel Chair to be prepared for the EPMR specifically.

27. Towards the end of this first visit to the Centre, and virtually between the initial and main phases, the panel members prepare preliminary drafts and précis of sections based on the outline of the report agreed by the panel and the writing responsibilities assigned by the panel Chair. This ensures that the panel undertakes a significant amount of preliminary drafting prior to the main phase of the review, and continue its assessment of the key issues and concerns during the period between the initial phase and the main phase.

Field Visits

28. To help ensure that the EPMR panel's assessments are adequately grounded in the reality of the Centre's circumstances, the panel is expected to undertake country field visits, jointly determined by the Centre, panel Chair and the SC Secretariat. The field visits cover the major non-headquarters based operations of the Centre, so as to provide a realistic assessment of the Centre's field operations, working conditions, and interactions with NARS and others in the region. These visits by panel members (as smaller "sub-panels", if necessary) are often for about 3-5 days each, and are undertaken before the main phase of the review.

29. A senior staff member from the Centre normally accompanies the (sub) panel members on these field/country visits, but does not participate in substantive discussions with country officials or representatives of regional fora. The resource person from the SC Secretariat helps coordinate the field visits and may accompany the panel members, as requested by the panel Chair. These visits supplement any surveys of NARS and Centre staff, organized by the resource person from the SC Secretariat in advance of the main phase.

Main Phase and Report Writing

30. The EPMR panel visits the Centre for a period of about 10-12 days to undertake the main phase of the review. At the end of this visit, final draft chapters are shared with the Centre management to ensure their accuracy, and the panel Chair presents the main findings and recommendations to the Centre management and staff. The Centre may invite Board members from the host country to attend the discussion with the Panel.

31. The EPMR panel's report is expected to focus on the four topics covered in the TORs - namely, the Centre's: a) mission, strategy and priorities; b) quality and relevance of science; c) effectiveness and efficiency of management; and d) what is documented about accomplishments and impact. The report is expected to be succinct and written in plain language, focusing on strategic issues. It can, where relevant, propose forward-looking recommendations on overall direction and priorities (rather than on detailed programme

content or operational management). The writing style is expected to be direct, explicit and frank.

32. Since descriptive material and detailed analysis is expected to be kept to a minimum, a report of about 60-70 pages - with suitable cross-referencing (not summaries) of the CCERs - is expected. However, if the CCERs available to the panel are inadequate in quality, coverage or depth, the EPMR panel's report is expected to compensate for gaps through its own analysis and assessment.

33. The panel will prepare final drafts of the EPMR report during the main phase and share them with the Centre management. The final EPMR report is expected to be completed at the SC Secretariat within two weeks from the main visit. It will then be sent to the Centre Board and management. At that time the panel Chair formally transmits the document to the SC Chair and the CGIAR Director.

Response and Follow-up

34. The Board and management of the Centre under review are expected to submit a formal written response to the EPMR report, addressed to the SC and the CGIAR Secretariat. The SC discusses the report in the presence of the panel Chair and representatives from the Centre (including the Board Chair and Director General), and prepares a commentary, in collaboration with the CGIAR Secretariat, including recommendations for follow-up action by the CGIAR or the Centre. The EPMR report, the Centre's written response, and the SC commentary are then submitted to the ExCo. It is discussed by the Program and Finance Committees of the ExCo, and the ExCo formulates recommendations to the Group.

35. As a final step in the review process, the CGIAR discusses the EPMR report and the accompanying comments, including ExCo recommendations, usually at its annual meeting, and agrees on follow-up action. Occasionally, this follow-up includes a CGIAR-commissioned Mid-Term Review (MTR) to monitor closely the Centre's handling of major concerns raised during the EPMR. The Centre's progress in implementing the recommendations of the EPMR is followed-up by the ExCo, which reports on the Centre's progress in meeting the agreed objectives. . Follow-up is done also by the next external review panel five years later, which includes in its external report a mandatory Annex on Centre compliance to the previous external review's recommendations - thus completing the external review cycle.

CONCLUSION

36. EPMRs provide the CGIAR and other stakeholders very valuable information on the accomplishments and future prospects of each Centre funded by the Group. Because they undertake a comprehensive strategic assessment of all key aspects of the institution, such reports from an independent external panel can provide much needed assurance to the CGIAR Members - as well as to the Centre's Board, management, staff and partners - about the Centre's direction and its institutional capacity to produce the desired research results. If significant changes in direction, scope, focus, or mode of work are required, these too can be made on a systematic and periodic basis, based on Board-endorsed EPMR recommendations. In any case, the Centre and the System benefit from such reviews.

APPENDIX IV

ITINERARY OF THE EPMR PANEL

The Panel Chair and the member responsible for the Management and Government aspects of the review attended IRRI's Board meeting held in Dhaka from 11-12 September, 2003. The Board meeting was held in conjunction with a communication fair of the PETRRA programme.

The whole Panel visited IRRI Headquarters during the Initial Phase from 28 November to 5 December, 2003. During this time the IRRI senior management, at the Panels request, arranged five sessions to discuss issues identified by IRRI and by the Panel. These sessions were held in concert with sessions prepared by Programme staff at the Panel's request to discuss research progress, achievements and future strategies. All together eight such sessions were held. Panel staff also met with research staff in smaller groups and had two sessions with senior management to review expectations from the EPMR and progress at the end of the Initial Phase. The Panel Chair visited key government officials in Manila.

Two Panel members visited Vietnam and Laos from 11-15 February. The main aim of the visits was to interact with NARS researchers and other stakeholders in gathering information and perceptions of IRRI's role in the regions, partnerships and mode of operation and future needs, in particular. In Vietnam, the opportunity to interact with IRRI's stakeholders was organised in conjunction with a major regional workshop that drew government and science collaborators from five countries in the region. The Panel members had also extensive discussions with IRRI's country staff in those two countries.

The Panel members prepared drafts for the report prior to arriving to the Centre for the Main Phase, which was held from 12 to 24 March, 2004, at IRRI Headquarters. This allowed the Panel to focus on debating and drawing conclusions on the major issues of strategic nature facing the Centre. The Panel sought further information and clarification from staff during informal interaction. All report chapters were shared with the relevant senior staff during Panel draft stage. The Panel presented the report and its major findings to senior program and management staff on 24th March and the conclusions were presented to an all-staff gathering staff on 25th March.

APPENDIX V

LIST OF DOCUMENTS PROVIDED TO THE PANEL[53]

A. Documents Provided by the SC and CGIAR Secretariats

To All Panel Members:

1. Terms of Reference and Guidelines for External Programme and Management Reviews of CGIAR Centres.

2. Report of the Fifth External Programme and Management Review report of the International Rice Research Institute (IRRI).

3. Report of the Fifth External Programme and Management Review of the International Institute of Tropical Agriculture (IITA).

4. Most recent CGIAR stripe studies involving the Centre (to all or relevant Panel members):
   (a) Systemwide Review of Plant Breeding Methodologies in the CGIAR (October 2001);
   (b) Report of the IRRI Subpanel on the System-wide Review of Plant Breeding Methodologies in the CGIAR (March 2000);
   (c) Contribution of IRRI to NARES released varieties: by country, 1998-2003;
   (d) International Research and Genetic Improvement in Rice: Evidence from Asia and Latin America (M. Hossain, D. Gollin, V. Cabanilla, E. Cabrera, N. Johnson, G.S. Khush and G. McLaren);
   (e) Ecological Diversity and Rice Varietal Improvement in West Africa (T.J. Dalton and R.G. Guei).

5. Toward a New Vision and Strategy for the CGIAR.

6. Excerpts relevant to the 6th IRRI EPMR from TAC commentaries to the Centre's Medium Term Plans since 1997.

7. CGIAR Annual Report, 2002.

8. CGIAR Brochure (2003) and Directory (2002).

9. Summary Record of Proceedings and Actions of the CGIAR Annual General Meeting 2002 (Philippines, October-November 2002).

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53 All these documents and additional ones requested during the review were place at an IRRI Web site.

Supplementary documents, to relevant Panel Members:

10. CGIAR Boards of Trustees Directory, 2002.

11. CGIAR financial guidelines (1999-2002).

12. Reference Guides for CGIAR International Agricultural Research Centres and their Boards of Trustees:
    (a) Guide 1: The Role, Responsibilities, and Accountability of Centre Boards of Trustees;
    (b) Guide 2: The Role of the Board Chair;
    (c) Guide 3: Creating a Well-Balanced Board;
    (d) Guide 4: Building Effective Board Committees;
    (e) Guide 5: Choosing a Director General: The Search and Selection Process;
    (f) Guide 6: Evaluating the Director General: The Assessment Process;
    (g) Guide 7: Board Self-Assessment.

13. Committees and Units of the CGIAR: Roles, Responsibilities and Procedures:
    (a) Advisory Committees (Interim Science Council, SPIA, GRPC);
    (b) Centre Committees (CBC, CDC, Marketing Group)
    - CDC Subcommittees and Task Forces;
    (c) Partnership Committees (NGOs, Private Sector);
    (d) Standing Committees (dissolved in May 2001).

B. IRRI Documents to EPMR Team

To All Panel Members and available at the Centre for reference:

14. IRRI Annual Reports and other reports:
    (a) Annual Reports (1998 – 2001);
    (b) Rice Today (2002 – 2004);
    (c) Program Report (1998 – 2000);
    (d) Report of the Director General (1998 – 2003).

15. Strategic Plan – IRRI Towards 2020 (1996 and 2003 editions).

16. IRRI's Medium-Term Plans for 1998-2000, 1999-2001, 2000-2002, 2001-2003, 2002-2004, 2003-2005, 2004-2006, including Annual Funding Request.

17. List of IRRI publications and achievements:
    (a) IRRI publications: January 1998 – September 2003;
    (b) IRRI Achievements by Organizational Units: 1998 – 2003.

18. Vision papers from IRRI Board of Trustees and Programmes.

19. IRRI organizational structure, management, and committees:
    (a) Office of Administration and Human Resources:
    (b) IRRI's Internal Management Structure;
    (c) IRRI Country Office Locations (outside Philippines) – November 2003.

20. Lists of IRRI professional staff, staff awards and honours:
    (a) IRRI Staff Directory (including staff biographies);
    (b) Honors and Awards received by IRS and NRS (1999 – 2003).
    (c) Measures of Esteem for IRS

21. Centre-commissioned External Review Reports:
    (a) August 2003 Update on Recommendations of the Centre-commissioned External Reviews (CCERs);
    (b) CCER of the Rainfed Lowland Rice Ecosystem Program;
    (c) Report of the External Review of the Project "Reversing Trends of Declining Productivity in Intensive Irrigated Rice Systems";
    (d) CCER: Rice Consortia for Less Favorable Ecosystems.

22. Other Reviews

Reviews with recommendations for IRRI:

(a) August 2003 Update to Recommendations from External Reviews of Special Projects and Thematic Areas;
(b) Report of the IRRI Bioinformatics Workshop (May 1999);
(c) The External Review of the Project: Irrigated Rice Research Consortium (October 1999);
(d) Irrigated Rice Research Consortium: External Review Report (October 2003);
(e) IRRI Intellectual Property Management Review (IP Audit) (October 1999, July 2000);
(f) Report of the IRRI Subpanel on the System-wide Review of Plant Breeding Methodologies in the CGIAR (March 2000);
(g) Increasing the Impact of Engineering on Agricultural and Rural Development (February 1998);
(h) Report on the Think Tank Meeting on the Use of ICT to Support IRRI's Training and Information Dissemination Objectives (April 1999);
(i) The Review Panel Report: The Rice-Wheat Consortium.

Reviews with project-specific recommendations:

(a) Cambodia-IRRI-Australia Project (CIAD) Phase 4: Mid Term Review – Main Report;
(b) Report of the Review Committee on the Programme on Assessing Opportunities for Nitrogen Fixation in Rice (August 1999);
(a) Report from the Review Meeting of the Japan-IRRI Shuttle Research Project (May 2000);
(b) External Review and Scoping Mission Report: Lao IRRI Rice Research and Training Project – LIRRTP (October 2003).

Reviews with recommendations for other institutions:

(a) Review of Systemwide Programs with an Ecoregional Approach (April 1999);
(b) Self Evaluation Study on the Policy Implementation and Impact of Agriculture and Natural Resource Research (September 2000).

Reports from think tanks with no specific recommendations:

Report of the Crop Genomics Meeting (April 2002).

23. IRRI's Response (and August 2003 Update) to the Recommendations from the Report of the Fifth External Programme and Management Review.

24. List of Active and Expired General and Project Agreements for cooperative activities with other centres and institutions.

25. List of ongoing and recently completed contracted projects.

Supplementary documents, to relevant Panel Members:

26. IRRI Charter and amendments.

27. Board of Trustees, Full Board (April 1998 – April 2002);

28. Board Handbook 2003.

29. Tables showing IRRI Staff Compensation Benefits:
    (a) IRRI International Staff Compensation Benefits: Main Categories (September 2003);
    (b) IRRI International Staff Compensation Benefits: Other Categories (March 2003);
    (c) IRRI Country Offices – Summary of Benefit Coverage for 2001.

30. Personal data on Professional Staff by Programme.

31. Staff Turnover and Composition, and Details of Retrenchment Programmes:
    (a) Internationally-Recruited Staff Turnover, 1998-2003;
    (b) IRRI Retrenchment Program 2002 – NRS;
    (c) IRRI Retrenchment Program 2002 – IRS.

32. Information Dissemination and Management System at IRRI.

33. Minutes of Board and Board committee meetings since the last EPMR:
    (a) Executive Committee (February 1998 – September 2001);
    (b) Finance and Audit Committee (April 1998 – April 2003);
    (c) Nominating Committee (April 1998 – April 2002);
    (d) Program Committee (April 1998 – April 2003).

34. Policies and Procedures for IRRI Staff:
    (a) Policies and Procedures for Internationally-recruited Staff (August 2002);
    (b) Policies and Procedures for IRRI Nationally-Recruited Staff (January 2003).

35. External Auditors' and Treasurers' Reports to the Board of Trustees:
    (a) Reports of External Auditors – Financial Statements and Supplementary Schedules (1999 – 2001);
    (b) Treasurers' Reports to the Board of Trustees (1998 – 2003).

36. IRRI Internal Audit Reports (2000 – 2003).

37. Other Documents

Background Documents

(a) Mechanisms for Partnership;
(b) Building Collaboration between NGOs and IRRI;
(c) Articles and Web Sites Featuring IRRI Staff and Research:
(d) Booklet of CGIAR Centre Policy Instruments, Guidelines and Statements of Genetic Resources, Biotechnology and Intellectual Property Rights (Version II, July 2003);
(e) Germplasm held in the Genetic Resources Centre at IRRI.

IPR Background Documents

Official IRRI Policy on International Property and on Partnership within the Private Sector.

IPR Policies

IRRI's Policy on Intellectual Property Rights, and IRRI's Policy on Partnership with the Private Sector.

Material Transfer Agreements

(a) MTA – Biofertilizers;
(b) MTA – CIHYRT (Coordinated International Hybrid Rice Yield Trials);
(c) MTA – FAO-designated Materials;
(d) MTA – Hybrid Rice;
(e) MTA – IRRI-Developed Biological Materials;
(f) MTA – IRRI-Developed Seeds;
(g) MTA – Non-IRRI Biological Materials;
(h) MTA – Non-IRRI Microoganisms;
(i) MTA – Non-Seed Biological Materials;
(j) MTA – Third Party Transfer of Seed;
(k) MTA – Transgenic Seeds;
(l) MTA – Photos, Software and Engineering Designs.

Clearance Sheets

(a) Confidentiality Agreement;
(b) Incoming MTA;
(c) Transgenic Seeds;
(d) License Agreement;
(e) MTA for Biofertilizer;
(f) Non-IRRI Microoganisms;
(g) Service Agreement.

Templates

(a) Memorandum of Agreement;
(b) Memorandum of Understanding:
(c) Research Agreement.

Contact Lists

(a) IRRI Donor Contacts;
(b) Science Quality Contacts;
(c) Country Contacts in Asia;
(d) NGOs and Private Sector Contacts.

Impact Studies

Bhutan

(a) An Economic Impact Assessment of the Rice Research Program in Bhutan (S. Shrestha);
(b) Local Tradition Meets Modern Know-How (J. Gorsuch).

Cambodia

(a) Impact Studies;
(b) Impact Brochure.

Laos

(a) Lao-IRRI Project: Impact Assessment of Research and Technology Development (S. Shrestha);
(b) Rice: The Fabric of Life in Laos (J. Gorsuch);
(c) Impact Brochure.

Myanmar

(a) An Economic Impact Assessment of Myanmar-IRRI Country Programs (S. Shrestha);
(b) Impact Brochure.

APPENDIX VI

IRRI'S RESPONSE AND 2003 UPDATE TO THE RECOMMENDATIONS OF THE FIFTH EXTERNAL PROGRAMME AND MANAGEMENT REVIEW, AND THE 6TH EPMR PANEL'S OBSERVATIONS

CHAPTER 4 - RESEARCH PROGRAMMES

Recommendation 1
*The Panel **recommends** that the Rainfed Lowland, Rainfed Upland and Flood-prone Programmes be combined into a single Rainfed Rice Programme, in which related lines of work can be brought together, emphasizing those where prospects for success are greatest.*

Response:
We agree with the Panel's recommendation to combine into one Rainfed Program the three Programs that deal with rainfed rice. This will have main benefits of streamlining the management of IRRI research with one Program Leader for the three rainfed ecosystems. However, we do not agree fully with the Panel's view on the opportunities to merge ongoing activities. Rather, we believe that each ecosystem should retain specialized groups of scientists at the Project Level for each of the rainfed ecosystems.

This is necessary for two reasons. One is related to our partnership with National Agricultural Research Systems (NARS); the other is related to the difference in the biophysical constraints that are unique to each ecosystem. Most NARS in Asia have recognized the need for specific programs to target each of the rainfed rice ecosystems. They have established their own research stations and programs for these ecosystems, and are members of the ecosystem-specific research Consortia. Thus, it is important that IRRI maintain a specialized group of scientists that can respond to specific needs and support the NARS.

The careful characterization of the rainfed systems into upland, rainfed lowland, and floodprone is done to recognize the different adaptive processes of the rice plant for these important ecosystems and to target the science for impact at the local level. For example, rice growing in the uplands requires improvement in the mechanisms for the exploitation of water and nutrients under aerobic soil conditions. In this, it is the same as any other crop. But rice in the rainfed lowlands needs to exploit the soil for these elements under both puddled soil conditions with excess water and under water deficits in the same cycle. Thus, the basic mechanisms for rice adaptation to the uplands and the lowlands are very different. And even in the flood-prone ecosystem where rice is grown under conditions more similar to the rainfed lowlands, rice must adapt to excesses in water levels that are not found in the rainfed lowlands. We will examine the limited opportunities for streamlining the projects while maintaining the focus on the specific adaptive processes that are required for each of the ecosystems.

Update August 2003:
Done. A new Consortium for Unfavourable Rice Environments (CURE) was established in 2002 with six Working Groups covering the main ecosystems of rainfed, upland, flood prone, drought prone, and submergence prone areas in major rice growing countries. Documents on

CURE and its meetings and actions so far are available with the CURE Coordinator, Dr. Tom Mew, who is Head of the Entomology and Plant Pathology Division, IRRI.

Panel observation:
The Consortium has been established effectively. (See Chapter 4)

Recommendation 2
*The Panel **recommends** that the research staffing in the Irrigated Rice Programme be reassessed with the aim of filling key positions, including an IRS agronomist with wide experience and certain skilled support staff in critical areas of work.*

Response:
We agree fully with the Panel's recommendation and we plan to recruit an agronomist who can integrate the various new approaches for rice production in the Irrigated rice system.

The Panel recognized the important advances in new approaches for rice production. The yield frontier is being raised through conventional breeding with yield gains of 1.0% per year, through tropical hybrids with yield increases of 10-15%, and through the potential opportunity from the non-conventional and new approach of the New Plant Type. They also noted the increased efforts on integrated weed management - an important component for direct seeded rice. Moreover, direct seeding of rice, driven by changes in the cost and availability of labor, can also reduce water use - an issue of importance raised by the Panel. Thus, it is timely that the Panel has recommended the hiring of an agronomist with a capability to integrate these components into new technologies for the well-watered rice systems.

Update August 2003:
Due to the severe and rather sudden core funding cut in 2002, IRRI was not able to fill a number of important IRS positions including that of a new, full time agronomist for the irrigated systems as we had planned in 2000-2001. Fortunately, we were able to receive one seconded IRS agronomist/ ecophysiologist, Dr. Tanguy Lafarge, from CIRAD-France. Dr. Lafarge arrived at IRRI in July 2002. His main areas of research at IRRI include hybrid rice, new plant type, and the intensive irrigated production systems in general. A new IRS weed scientist, Dr. David Johnson, has been recruited and will report to work at IRRI in early September 2003. The IRRI agronomist Dr. V. Balasubramanian continues to work on training and technology dissemination in integrated crop management in the irrigated rice systems, primarily in India, Indonesia, and Vietnam. A new agronomist/soil scientist, Dr. Stephan Haefele, was recruited in February 2003 to work in the rainfed rice systems.

Panel observation:
Implemented.

CHAPTER 5 - RESEARCH DIVISIONS AND SERVICES

Recommendation 3
*The Panel **recommends** that IRRI evaluate carefully the developments in bioinformatics with a view to determining IRRI's future in this area.*

Response:
We agree with the Panel's recommendation and plan to strengthen our capacity in bioinformatics taking into consideration our comparative advantage and, at the same time, collaborating with ARIs.

IRRI's unique role in bioinformatics is in providing the phenotypic information that must be linked to molecular information to maximize the functional usefulness of biotechnology. IRRI, along with other Centres, has developed a comprehensive data management system that can interlink germplasm information, nursery performance, pedigrees, and field performance of varieties. The key role now is to link this traditional data with that of the molecular data of the rice genome. Most of the genomic data (for rice) is with the ARIs, particularly in Japan and the USA. Increasingly, functional information for rice will become important for other crops. Thus, IRRI plans to provide an important linkage between the traditional and the genomic data sets and ensure that this functional information is shared with NARS.

Update August 2003:
Dr. Richard Bruskiewich was hired as IRRI's Bioinformatics Specialist. He has established international network of collaboration with IARC, ARI and NARES in bioinformatics, built a team of NRS and students to design and implement bioinformatics. He assisted Dr. Graham McLaren to extend the International Rice Information System (IRIS) database to include support on rice functional genomics and a WWW interface, which is being integrated with other international plant databases. IRRI staff annually now attend major international meetings in bioinformatics (or genomics/bioinformatics) to keep in touch with developments in bioinformatics and integrate such technologies into IRRI's research agenda.

Panel Observation:
Implemented, on-going.

Recommendation 4
*The Panel **recommends** that: (a) a meeting of CORRA be convened with a specific agenda to design a high-quality INGER that meets NARS and IRRI breeders' needs and achieves scientific ends of value to all; (b) IRRI give the highest priority to running INGER according to this agreed programme: and (c) the vacant position of INGER coordinator should be filled as a matter of urgency with an energetic and respected rice scientist.*

Response:
We are pleased that the Panel supports IRRI's earlier decisions to maintain a strong Program for impact built around Networks such as INGER and in training activities. And we appreciate the particular importance that the Panel has given to INGER and its role in the safe exchange of rice varieties to enhance the diversity of rice breeding programs worldwide.

INGER has been in existence for more than 20 years and has enjoyed special donor support. Its members realize that now it must find its own means as a mature and valued network.

There is a joint commitment by all partners to sustain the core activities of INGER. IRRI is fully committed to support the primary function of INGER - the safe international exchange and evaluation of elite germplasm. At the same time, we aim to enhance the knowledge about the germplasm through research and training.

We can report that plans have already been made to hold a workshop during the first half of 1998 to assess the structure and operations of INGER in the light of the needs of NARS and the expected funding environment. The proposed meeting of CORRA will provide the forum to consolidate these ideas, reach agreement on the way forward, and have commitment from all interested parties. The recruitment of the INGER coordinator is already underway. We expect to fill this position by the third quarter of 1998.

Update August 2003:
Dr. Edwin L. Javier was hired as INGER Coordinator in September 1999. Since December 1999, CORRA has been serving as the Steering Committee of INGER, looking after the program's broad policies and overall direction. Every year, INGER presents to CORRA its accomplishments and issues affecting germplasm and information exchange. IRRI sponsored a number of workshops and meetings that focused on building institutional capacity of CORRA member countries to manage and exchange rice germplasm in a rapidly changing IPR environment. These activities have generated two products that strengthened the INGER program:

- *an MTA that could be used in germplasm exchange by INGER and NARES to ensure that shared germplasm would not be misappropriated;*
- *an INGER Code of Conduct (approved by CORRA in 2001), which states INGER policies on partnership with NARES, germplasm sharing, and germplasm utilization.*
- *In the first half of 2003, NARES contributed 140 materials to INGER, which is considerably more than the contributions received from NARES from 1998 to 2002, reflecting the positive effect of the activities mentioned above.*

INGER is also an active participant in the UPOV Asian initiative on development of harmonized rice test guidelines for conducting rice variety distinctness, uniformity, and stability tests (DUST) to be used in plant variety protection. It is also involved in enhancing germplasm information sharing among INGER partners.

Panel Observation:
IRRI has implemented the recommendation, but the Panel notes that funding for the very important INGER remains anemic, and recommends an alternative funding model.

CHAPTER 6 - ISSUES

Recommendation 5
*The Panel **recommends** that IRRI, the donors, and the NARS convene to address potential problems related to IRRI's current private sector and intellectual property policies, after the reports of the CGIAR Panels on Biotechnology and Proprietary Science are published.*

Response:
We agree with the Panel's recommendation of the need for IRRI to define its role as a provider of rice research products in a rapidly changing environment of IPR and access to modern technology, processes, and information.

But we believe that it is in our best interest to define our own policy, which will be unique for rice in Asia. We plan to do so in full discussions with our many stakeholders, and we will neither take unilateral steps that compromise the status of the rice germplasm collection under the agreement with FAO nor action that is not consistent with the Convention of the Biological Diversity.

We are planning such a stakeholders meeting of NARS, donors, NGOs, farmer groups, IPR specialists and members of the private sector. They will review and suggest policy and operational changes to safeguard our intellectual property while retaining our overall goal of the free availability of public goods for rice research. We agree with the Panel's assessment that there is much of IRRI's IP that is potentially valuable as collateral for exchange with others who possess patented technology that we need to fulfil our public mission.

We anticipate that the outputs from this stakeholders' workshop will also contribute to CGwide efforts toward developing realistic approaches for partnerships with the private sector and in evolving guidelines for Policy in Intellectual Property Rights for the Centres.

Update August 2003:
IRRI's current practice of sharing intellectual properties is consistent with the recommendations made by the CGIAR Proprietary Science and Technology Panel in May 1998. While partnerships with the private sector have increased, IRRI has remained true to its mandate. IP protection will be pursued after careful analyses of the costs and benefits on a case-by-case basis. Issues relating to IP and sharing of germplasm have been discussed with NARES at the INGER and CORRA meetings. An IPR Workshop highlighting the use of material transfer agreements in germplasm exchange was held in July 2001 for INGER coordinators. This very timely training was greatly appreciated by the NARES.

Panel observation:
IRRI has a very sophisticated and clear policy on IP. Although a special meeting on all aspects of IP or even on IRRI's policy on IP has not been convened, IRRI has apprised its specific stakeholders (e.g. INGER coordinators) of its policies relevant to them.

Recommendation 6
*The Panel **recommends** that a strategic programme on soil carbon nitrogen dynamics in flooded soils should be designed and mounted in collaboration with appropriate Centres of excellence.*

Response:
We welcome and agree with the Panel's recommendation to strengthen our strategic research on understanding the processes governing carbon and nitrogen fluxes and balances in intensive irrigated rice systems.

We note that the Panel endorses the systematic manner by which we are examining the issue of productivity Decline in Intensive Rice. The emerging information of declining yields at the same inputs in long-term experiments and the observations that farmers may require more inputs for the same outputs (yield) were raised by the previous (1992) EPMR Panel as the most important research issues for IRRI to address. We put experiments in place to monitor changes in farmers' fields and we posed and tested various hypotheses that enabled us to better define the factors required for maintaining yields in intensive irrigated rice systems.

These studies now indicate the importance of the unique changes in soil carbon and nitrogen dynamics under intensification of flooded rice as the driving processes that affect nutrient supply for the crop. We are now in a position to focus our strategic research on these fundamental and critical soil processes.

Already, we have established links with ARIs such as Rothamsted to assist in this research and we will strengthen such collaboration with this and other institutes.

Update August 2003:
IRRI held a workshop in 1999 in which nine experts assisted IRRI scientists in reviewing past research and identifying future research priorities for the sustainable management of soil organic matter (SOM) in rice ecosystems. One of their conclusions was that the return of crop residues as manipulated by time and method of incorporation offers considerable opportunity for managing SOM in rice ecosystems. Papers and recommendations from the workshop were published by Kirk and Olk (2000)[54]*. A proposal entitled "Managing soil organic matter for sustained productivity and efficient resource use in evolving rice production systems" to be conducted in collaboration with Centres of excellence in Germany was submitted to BMZ in 2001. The proposal was not supported, but BMZ subsequently supported a planning workshop in April 2002 with NARES from China, India, and the Philippines to develop a revised proposal. During the April 2002 planning workshop, the NARES representatives identified the developing and testing of alternatives to the burning of crop residues as the highest priority. A proposal entitled* Managing crop residues for healthy soils in rice ecosystems *was subsequently supported by BMZ at €1.2 million for three years. The project officially started on 2003-04-01, and it includes a strong component of strategic research to be conducted—in collaboration with Centres of excellence—on the effects of alternate crop residue management practices on soil carbon and nitrogen dynamics.*

Panel observation:
Being implemented.

CHAPTER 7 - ORGANIZATION AND MANAGEMENT

Recommendation 7
The Panel ***recommends*** *that the Board undertake annual self-assessments, and annual assessments of the DG, and that records be kept.*

Response:
The Panel recommends a formal self-assessment of the BOT. The IRRI Board agrees that self assessments are important, but believe that as Asian culture dominates the BOT, a rigid written formal system would be counter-productive. However, the current system will be evaluated at a future Board meeting.

The composition of IRRI's BOT is such that all requirements concerning balance in gender, North-South disciplines, etc., are fulfilled. In its aim to strengthen the support for IRRI in the region, the BOT has invited senior policy makers, such as Ministers and top business and NGO representatives to participate in the BOT. Their willingness to serve illustrates IRRI's ownership by the stakeholders in the region.

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[54] Kirk GJD, Olk DC, editors. 2000. Carbon and nitrogen dynamics in flooded soils. Proceedings of the workshop on Carbon and Nitrogen Dynamics in Flooded Soils, 19-22 April 1999, Los Baños, Philippines. Makati City (Philippines): International Rice Research Institute. p 188.

The Panel rightly stresses the importance of formal assessment procedures of the Director General and it is the intention of the BOT to employ such procedures with the new Management.

Update August 2003:
Since April 1999, there has been a formal assessment of the DG by the Chairman of the BOT. Each year, the DG was asked to submit priority areas considered during the year and progress made. Records were kept of the information submitted by the DG, but reports on the evaluations were made verbally to the DG until April 2003. In April 2003, a written evaluation of the DG was given. The written evaluation of the DG by the BOT will be done annually in the future. Since April 1999, there have been discussions each annual meeting of the performance of the BOT, but no written record was kept until April 2003. In April 2003, a form was developed and filled out for the self evaluation of each individual member of the BOT. This written evaluation of each member of the BOT will be done annually in the future.

Panel observation:
Now being implemented.

Recommendation 8
*The Panel **recommends** that no major changes are made to the current organizational structure before the new DG has had time to consider whether changes are necessary.*

Response:
IRRI is fully aware that changes in organizational structure should be done only when really needed. Structure follows strategy. It is for that reason that an IRRI Task Force carefully studied the organizational structure that is needed now that the new MTP has been accepted and is implemented. The proposals prepared by that Task Force will be used in an *ex ante* evaluation of future organizational structures.

IRRI's intention to strengthen the relation with its various partners, to increase the transparency of the research programs and divisions, and to amplify public awareness and fund generation have to be taken into account in the organizational structures. Full implementation of a new structure at this moment is not the intention of IRRI. However, the filling of vacancies for the Directors of Finance, Administration and Human Resources, and External Operations is considered necessary. The DDG position for Partnerships and Liaison is vacant and will not be filled until the new DG is identified. In this way, it is possible to create maximum flexibility for the new DG and guarantee continuity and stability for the Institute.

Update August 2003:
No changes in the organizational structure were made until the new DG had an opportunity to become familiar with the organization and consult with new members of the management team. The DG concurred with the elimination of the DDG for Administration and Finance and replaced with a Director of Finance and a Director of Administration and Human Resources. Since the last EPMR, the significant structural changes were the establishment of the position of DDG for Partnerships, establishment of the position of Director for Program Planning and Coordination, reduction in the number of programs, divisions, and projects, increased membership on the Management Committee, and consolidation of the positions of

Head of IPMO and Head of the Training Centre. Figure 1 was the organizational structure in February 1998 and Figure 2 presents the organizational structure in May 2003.

Panel observation:
Not applicable.

Recommendation 9
*The Panel **recommends** that a review be undertaken of management methods, including rewards for carrying managerial responsibility within the matrix; the efficient conduct of meetings; streamlining the interface between research, finance and administration; and appropriate delegation. This initiative must be seen to have the full commitment of the senior management team.*

Response:
IRRI Management is fully aware that matrix management is a complex endeavor. In a world where financial resources, hence human resources, are unconstrained, a full hierarchical structure incorporating all relevant disciplines is easier to manage. Given the funding realities of the CGIAR System today, however, human talents must be shared and thus optimized. Some form of matrix management has become the norm in most modern research organizations, including those of the CGIAR System. As pointed out in the report under section 7.4, in the case of IRRI, "the matrix was adopted as a means of ensuring relevance of the research programs and projects to IRRI's goals, while maintaining scientific excellence".

IRRI agrees that better management could enhance performance. As recommended by the Panel, steps are being taken to further clarify and strengthen relationship between the finance and administration supporting units and the research projects. IRRI management is in the process of establishing responsibility/performance bonus premiums for Project Team Leaders. Substantial training has already taken place for staff on matrix management. Future training programs will emphasize efficient and effective ways to reduce transaction costs. IRRI senior management is fully committed to this effort.

Update August 2003:
In 1998 the unwritten policy was for all program leaders, division heads, and project leaders to receive an additional 15% pay for these responsibilities. This policy was discontinued in 2000 because of inequities caused by having a wide range of responsibilities within this group of individuals and all receiving the same % increase for what was considered additional responsibility. One problem caused by the large number of programs, divisions, and projects was there was not enough staff available for all of the positions. Also, not all project leaders were receiving this additional pay. In addition to eliminating this policy, the number of programs was reduced from 7 to 4, the number of divisions from 6 to 4, and the number of projects from 31 to 12 under the new MTP 2000-2002. This greatly reduced the number of meetings.

Beginning in 1999 a major effort was made to make the budgeting process more transparent. The members of the research management team were made fully aware of all funds available and were involved in the allocation between and within projects. The management responsibility matrix has been revised to reflect the changes made under the new MTP.

Panel observation:
IRRI has addressed this issue in one form or another almost continuously over the period.

CHAPTER 8 - ADMINISTRATION AND OPERATIONS

Recommendation 10
*The Panel **recommends** that IRRI prepare a current Capital Plan, and that IRRI management and the Board of Trustees decide the appropriate level of the Capital Fund, and that all future adjustments to the Operating Fund and Capital Fund be carefully and clearly documented.*

Response:
It is our understanding that the Panel Chair checked with the CGIAR Secretariat and verified that the accounting methods followed by IRRI were consistent with the requirements of the CGIAR Accounting Systems Manual and that IRRI was not in violation of any such requirements. With regard to the existing Board-approved Capital Plan, IRRI plans to review and update it and present for Board approval any recommendations for revisions.

Update August 2003:
At the April 1999 BOT meeting, IRRI management presented a Capital Plan for the period 1999-2008. The BOT approved this plan and the level to be maintained in the Capital Fund. The report and BOT actions are recorded in the minutes of the April 1999 BOT meeting. IRRI now prepares a 3-year rolling capital plan that is approved annually by the Board. The management of the operating fund (now called operating reserves) and capital fund (now called capital reserves) are clearly separated. The following table (US$ x000) shows the movement in the two accounts for 1998-2002:

	1998	1999	2000	2001	2002
Operating reserves	2,408	5,039	4,802	6,774	6,186
Opening balance	2,631	(237)	2,772	(558)	(187)
Adjustments			(830)		
Closing balance	5,039	4,802	6,774	6,186	5,999
Capital reserves	13,837	10,886	13,263	11,803	9,652
Depreciation	2,449	2,570	2,171	2,223	2,127
Fixed assets acquisition (net)	(5,400)	(193)	(3,631)	(4,374)	(1,112)
Closing balance	10,886	13,263	11,803	9,652	10,667

Panel observation:
Implemented.

Recommendation 11
*The Panel **recommends** that IRRI ensure that the internal audit function becomes fully effective in improving internal financial and operational controls, by reviewing the current level of skills available within IRRI for the Internal Audit function, deciding which skills it is necessary to have internally and which skills might be out-sourced, and implementing the organizational and staffing changes required.*

Response:
The IRRI Board of Trustees and Management agree that the Internal Auditor function needs to be strengthened and are actively addressing this issue.

A report outlining alternative strategies is being prepared for consideration by Audit Committee and Board of Trustees. In the near future, concrete steps will be taken to strengthen the IRRI internal audit system.

Update August 2003:
In September 1999, the Executive Committee of the BOT approved the use of the CGIAR/ICLARM/IPGRI/IRRI Internal Audit Group as IRRI's outsourced Internal Auditors for 2000. This group has been proven to be most useful to IRRI management and the BOT and thus has continued to serve this Internal Audit function since 2000. A Director with over 20 years of international audit and management experience leads the service, which has its business base at IRRI. The Director reports functionally to the Director General and Board of Trustees. A rolling medium term (3 year) internal audit program for IRRI is agreed annually and implemented by the Director, by two other professionally qualified Internal Auditors based at Los Baños, and by short term consultants or secondment of Internal Auditors from other Centres where this is cost-effective and specific skills are needed. Audit activity is conducted in accordance with CGIAR Finance Guideline No. 3, which was updated in 2001 to conform to international professional internal auditing standards. Evaluation to date indicates that the arrangement has adequately addressed the concerns raised in the last EPMR, and that IRRI benefits from a cost-effective internal audit function that draws on international best practice. This group has been proven to be most useful to IRRI management and the BOT and thus has continued to serve this Internal Audit function since 2000.

Panel observation:
Implemented.

LIST OF ACRONYMS

ADB	Asian Development Bank
AEU	Agricultural Engineering Unit
APM	Annual Planning Meeting
APSRU	Agricultural Production Systems Research Unit
ARBN	Asian Rice Biotechnology Network
ARI	Advanced Research Institute
ASA	Swiss Arbitration Association
Ausaid	Australian Agency for International Development
AWD	Alternate Wetting and Drying
BBU	Biometrics and Bioinformatics Unit
BCA	Benefit Cost Analysis
BOT	Board of Trustees
BPH	Brown Planthopper
BRRI	Bangladesh Rice Research Institute
Bt	*Bacillus thuringiensis*
CCER	Centre Commissioned External Review
CD-ROM	Compact Disc, Read-only Memory
CEP	Cross-Ecosystems Program
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIDA	Canadian International Development Agency
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
CNRM	Community Natural Resources Management
CORRA	Council for Partnership on Rice Research in Asia
CP	Challenge Programme
CSWS	Crop, Soil, and Water Sciences Division
CURE	Consortium for Unfavourable Rice Environments
DDP-P	Deputy Director-General for Partnerships
DDP-R	Deputy Director-General for Research
DFID	Department of International Development
DG	Director-General
DNA	Deoxyribonucleic acid
DW	Deep Water and Tidal Wetland
DWR	Deep Water and Tidal Wetland Rice
EA	External Auditor
EPMR	External Programme and Management Review
EPPD	Entomology and Plant Pathology Division
EU	European Union
FAC	Finance and Audit Committee
FAO	Food and Agriculture Organization of the United Nations
FE	Fragile Rice Production Environments

FTE	Full Time Equivalent
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GM	Genetic Modification
GOC	General Operating Costs
GPS	Global Positioning Systems
GRC	Genetic Resources Centre
G x E	Genotype x Environment
HR	Human Resources
HYV	High Yielding Varieties
IARC	International Agricultural Research Centre
IAS	Internal Audit Standards
ICIS	International Crop Information System
ICLARM	International Centre for Living Aquatic Resources Management
ICRAF	World Agroforestry Centre
ICT	Information Computing Technologies
IDRC	International Development Research Centre
IFDC	International Soil Fertility and Crop Development Centre
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
INGER	International Network for Genetic Evaluation of Rice
INRM	Integrated Natural Resource Management
IP	Intellectual Property
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
IPMO	International Programmes Management Office
IPR	Intellectual Property Rights
IPSWAR	International Platform for Saving Water in Rice
IRF	International Research Fellow
IRFGC	International Rice Functional Genomics Consortium
IRGC	International Rice Genebank Collection
IRGCIS	International Rice Genebank Collection Information System
IRGSP	International Rice Genome Sequencing Project
IRIS	International Rice Information System
IRRC	Irrigated Rice Research Consortium
IRRI	International Rice Research Institute
IRS	Internationally Recruited Staff
IT	Information Technology
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IWMI	International Water Management Institute
LCC	Leaf Colour Chart
MAS	Marker Assisted Selection
MM	Multi-dimensional Matrix Management
MTA	Material Transfer Agreement

MTP	Medium Term Plan
NARES	National Agricultural Research and Extension Systems
NARS	National Agricultural Research Systems
NC	Nominating Committee
NGO	Non-Government Organization
NPT	New Plant Type
NRS	Nationally Recruited Staff
NRM	Natural Resource Management
NSF	National Science Foundation
PhilRice	Philippine Rice Research Institute
PBGB	Plant Breeding, Genetics and Biochemistry Division
PDF	Post Doctoral Fellow
PDR	People's Democratic Republic
PETRRA	Poverty Elimination Through Rice Research Assistance
PTL	Project Team Leader
PVS	Participatory Varietal Selection
QTL	Quantitative Trait Loci
R&D	Research & Development
RL	Rainfed Lowland
RLR	Rainfed Lowland Rice
RNA	Ribonucleic Acid
RWC	Rice-Wheat Consortium
SARP	Systems Analysis and Simulation for Rice Production
SDC	Swiss Agency for Development and Cooperation
SGV	SyCip Gorres Velayo & Co.
SRI	System of Rice Intensification
SSD	Social Sciences Division
SSNM	Site-specific Nutrient Management
TAC	Technical Advisory Committee
TGMS	Thermosensitive Genic Male Sterile
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UC	University of California
UPLB	University of the Philippines, Los Banõs
UR	Upland Rice
USDA	United States Department of Agriculture
USG	Urea SuperGranule
WARDA	West Africa Rice Development Association
WWF	WorldWide Fund for Nature