

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

Interim SCIENCE COUNCIL

**Report to the Annual General Meeting
of the CGIAR from
The Standing Panel on Impact Assessment (SPIA)
of the Interim Science Council**

iSC SECRETARIAT

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iSC STANDING PANEL ON IMPACT ASSESSMENT (SPIA)

Report to AGM02

This is the last report to the Annual General Meeting of the CGIAR from the Existing Standing Panel on Impact Assessment (SPIA) of the Interim Science Council. Thus, in contrast to past reports, this one, in addition to providing a picture of the activities and progress during 2001-02, also provides SPIA/iSC's suggestions for maintaining continuity and an active program during the transition to a new impact assessment entity.

1. MANDATE AND COMPOSITION OF SPIA

The existing mandate of the CGIAR Standing Panel on Impact Assessment (SPIA) is threefold, namely to:

- provide CGIAR Members with timely, objective and credible information on the impacts at the System level of past CGIAR outputs in terms of the CGIAR goals;
- provide support to and complement the centres in their ex post impact assessment activities; (this includes facilitating inter-centre impact assessment efforts and providing a forum for exchange of experience from impact studies); and,
- provide feedback to CGIAR priority setting, and create synergies by developing links to ex ante assessment and overall planning, monitoring and evaluation functions in the CGIAR.

Members of SPIA are chosen for their independence and impact assessment expertise and familiarity with international agricultural research. The present members of the Standing Panel are Drs. Ruben Echeverria (Uruguay) and Hermann Waibel (Germany). The Chair is Hans Gregersen (USA), who also serves as an ex officio member of the iSC. Alain de Janvry (France) and Elias Fereres (Spain) are ex-officio members of SPIA in their capacities as Chairs of SCOPAS/iSC and SCOER/iSC respectively. Tim Kelley is the person assigned to SPIA from the iSC Secretariat. In addition, iSC Secretariat member, Sirkka Immonen, has been working with SPIA on the training impacts study described below and deserves special thanks from SPIA.

2. CURRENT STATUS OF SPIA ACTIVITIES

Given the importance that CGIAR members assign to independent and transparent assessment of the impacts of their CGIAR investments, the current SPIA wants to help ensure that there is a smooth transition to an active and relevant new program of impact assessment under the new Science Council. Thus, what follows in this section is a discussion of on-going, agreed upon activities being undertaken by SPIA together with recommendations for their successful completion. In Section 3, SPIA, based on its experience over the past years, provides discussion and recommendations on how to proceed with on-going impact assessments that have planned timeframes beyond mid 2003, and on promising new activities that the Science Council might consider for the future.

Many of the below mentioned activities were discussed in SPIA's report to AGM01 and have been widely discussed by the members. Brief updates are provided here on this older set of activities. In several cases, SPIA is in the process of completing and publishing final reports (e.g., the germplasm enhancement impacts study and the environmental impacts assessment). The IFPRI led poverty impacts study also has been ongoing for some time, and significant progress has been reported at several meetings of the Group. The current SPIA report provides revised plans for bringing this activity to a successful completion within the coming year and moving poverty impact assessment into centres as a mainstream activity.

2.1. Environmental Impact Study

A report by prepared by Mywish Maredia and Prabhu Pingali on the negative impacts of productivity enhancing research entitled "Environmental Impacts of Productivity-Enhancing Crop Research: A Critical Review" was published and distributed earlier in the year. The main conclusions of these reports were highlighted in the SPIA Report to the Group at AGM 01. The authors concluded that it is not possible to develop aggregate quantitative estimates of negative environmental impacts—the compounding factors accounting for the linkages between research and environmental impacts are too complex to sort out given present analytical methods and available data. Evidence of negative environmental impacts has only been presented in the literature for a few GR crops, e.g., for rice (from pesticide use) and for wheat (from fertilizer/irrigation problems), and these are often associated with other causes, such as institutional or policy failure. Furthermore, there is, to date, little evidence of environmental damage resulting from other CGIAR mandate crops.

The other main report from this study, "Environmental Impacts of the CGIAR: An Assessment" by Michael Nelson and Mywish Maredia has been extensively revised to take into account comments on data and methodology used in the earlier version. While some of the quantitative results have changed, i.e. are more conservative, the main findings have not changed: Contributions by the CGIAR in the areas of germplasm enhancement and agronomy have permitted significant yield increases in farmers' fields, thus leading to less land being required to produce a given quantity of food crops. The Panel report is expected to go to green cover after a final review by SPIA members.

2.2 Germplasm Improvement Impact Study

Although a final report on this project was presented at MTM 01, subsequently a number of major revisions were undertaken by the authors in response to a thorough external peer review by three referees. While some numbers have changed somewhat, the basic conclusions remain as presented at MTM01. The revisions are complete and CABI International is now in the process of finalizing proofs. The 23-chapter book containing the main elements of this SPIA activity, which documents the impact of CGIAR and NARS crop germplasm improvement, will be published in late 2002 or early 2003. Copies will be available for members.

2.3. Training Evaluation and Impact Assessment

Background

In TAC79, TAC commissioned an evaluation and assessment of capacity strengthening activities in the CGIAR. One part of this review is a study focusing specifically on CGIAR training. The CGIAR members and Centre representatives reacted positively to this idea, considering it both important and timely. It would provide a means to develop concepts,

methods and data to use in the assessment of the other components of the overall set of capacity strengthening activities in which the CGIAR is engaged. Since TAC79, TAC/iSC has continued to endorse the need for this activity, which will include a rapid appraisal type of stripe study on the current state-of-the art of training activities in the Centres and a research based assessment of actual and potential impacts. The implementation of this study has been the joint responsibility of SCOER (Standing Committee on External Reviews) and SPIA.

The purpose of the training study is to evaluate the overall effectiveness of the training processes and outputs and assess the impacts of the CGIAR training activities for the NARS and identify how the activities could be improved. The study's broad objectives are to: (1) evaluate the quality and relevance of the training activities within the CGIAR, (2) evaluate the comparative effectiveness and efficiency of CGIAR training activities, (3) assess the intermediate outputs and impacts of training, and, to the extent possible, (4) assess the impacts of CGIAR training in the context of the CGIAR ultimate goals of poverty reduction and food security through sustainable production.

Given uncertainty about the available budget, TAC/iSC decided at TAC 81 to concentrate first on a desk study to gather, collate and analyze available information and data on training. At TAC/iSC82, the iSC reinforced the decision to implement the main study with primary focus on selected NARS. However, the transition of TAC into a Science Council has delayed a commitment of resources to undertake the main study. Implementation of the main phase, which will involve field work and original data generation, hinges critically on the availability of adequate funds within the framework of the future Science Council. Ultimately, this evaluation will provide recommendations on ways to make the impacts from System training activities more relevant and sustainable in terms of CGIAR goals. Thus, SPIA considers this a top priority for the new impact assessment entity soon to be established.

Rationale

The current context of alternative training providers, new modes of channelling capacity strengthening activities, and declining funding is forcing the CGIAR Centres to prioritise and re-design their capacity strengthening strategies. The training study is expected to provide information useful to the CGIAR and the Centres in setting relative priorities regarding training focus, identifying effective strategies for CGIAR training activities at the System level, and enhancing coordination of training as part of other capacity strengthening activities. In particular, the study aims to help: 1) the Centres improve the integration and effectiveness of their training activities; 2) the Donors develop justifications for support to the training programmes; 3) the NARS assume increasing responsibility in capacity strengthening and training appropriate for their own needs; and 4) the System, e.g., through the Science Council and other bodies, in monitoring and evaluating (self and external) of the training activities aimed at strengthening NARS capacities. The study also plans to inform the development of training in the context of the new operational model that the CGIAR is in the process of implementing, including particularly the cross-centre challenge programmes.

Desk Study

SCOER and SPIA have worked in close collaboration with the centre focal persons nominated by the DGs for the desk study. The study has four components as follows:

1. An analysis of background information from external reviews and other documents on important issues related to training and capacity strengthening. This analysis will produce a description of what is already known about the training programmes and strategies of CGIAR training activities.
2. A compilation of information and data on Centre training activities. For this component, each Centre was asked for a description of its training programme and annual data for the period 1990-2000 on all training activities (type, theme, length etc., including, to the extent possible, funding) and on the participants of each training event (country, sex, age, institution, status, etc.). The data are being analysed for each individual Centre in order to describe trends in strategies, thematic and operational focus, funding and output in the long-term and for formulating hypotheses regarding alternative strategies and modalities. Then, because the data provided varies in form and content, a qualitative analysis will be done across the Centres to describe any overarching trends, themes, and issues.
3. A Delphi survey among selected stakeholder in the developing countries to identify the crucial issues to be covered in the design of the main study and to facilitate NARS contributions and involvement in the main study's field work. This component is still in the planning phases. These three components of the desk study are in process and nearing completion.
4. Formulation of a conceptual model or framework showing the anticipated links between training processes and training impacts. Drawing on summaries prepared for the first two components, this component has progressed as far as an initial draft of the conceptual model. (See Table 1)

During 2002, Dr. Leslie Cooksy of the University of Delaware, and evaluation expert, has assisted SCOER and SPIA in conducting the desk study and preparing for the main study. Her responsibilities have been to assist the iSC Secretariat in organising and analysing the data and information. In addition she is providing advice for deciding on the focus, scope and methodology for the study main phase and assisting in defining the ToR for the study Panel.

Table 1: Generic Model of CGIAR Training¹

Inputs	Activities	Outputs	Short-term outcomes	Intermediate outcomes	Long-term outcomes ²
<ul style="list-style-type: none"> ■ Results of training needs assessment ■ Skilled trainers ■ Funds 	Identify priority topics	List of training priorities	CGIAR training is relevant.		<ul style="list-style-type: none"> ■ Policy makers, managers and project leaders have a comprehensive vision of the role of science and technology in agricultural development ■ The sustainability of the development of the agricultural sector is increased. ■ A network of current and future partners throughout the developing world is established.
	Select appropriate training delivery tools and strategies for topic and audience (appropriate based on training needs, cost, integration of local knowledge, etc.)	Plans for addressing priority topics			
	Develop quality training materials	# and type of training materials developed	Well-designed training materials are available to CGIAR partners and clients.	NARS have an increased capacity to train their own staff.	
	Deliver training or support its delivery by another institution	<ul style="list-style-type: none"> ■ # of training events by type of event (group, individual, etc.) ■ # of participants/training event ■ # of men and # of women/training event ■ # of participants/nationality/training event 	<ul style="list-style-type: none"> ■ Trainees increase their knowledge and develop new skills. ■ The numbers of national scientists with postgraduate research qualifications are increased. ■ The numbers of specialists in the use of scientific methods and techniques are increased. 	<ul style="list-style-type: none"> ■ New knowledge and skills of trainees are transmitted to trainee colleagues and clients (multiplier effect). ■ NARS develop and implement relevant and up-to-date research programs. ■ NARS and other development partners increase their capacity to acquire, apply, access and further develop knowledge, skills, technologies and policies 	
	Participate in networks, consortia, and regional programmes (facilitates multiplier effect)	<ul style="list-style-type: none"> ■ # of networks, consortia, and regional programmes participated in by Centre staff ■ # of Centre staff participating in networks, consortia, and/or regional programmes 	<ul style="list-style-type: none"> ■ The exchange of information, experiences, and strategies among course participants, including course leaders (Centre staff), is increased. ■ Links between and among NARS scientists and Centre researchers are established. ■ Collaborative networks among countries – both formal and informal – are facilitated. ■ Research-extension-user linkages are developed or strengthened. 	<ul style="list-style-type: none"> ■ R&D partners have increased capacity for and interest in partnership. ■ R&D partnerships/collaborations increase. ■ R&D partnerships/collaborations produce improved technologies more quickly. ■ Interdisciplinary work among NARS researchers and between NARS researchers and their research partners increases. ■ Community-level adaptation of improved technologies increases. 	
	Support educational institutions, including primary and secondary schools, in incorporating relevant information in the curriculum	# and type of educational institutions supported	Educational institutions adopt changes in curriculum.	Educational policies support the incorporation of appropriate technologies and natural resource management in educational activities.	
	Support training courses organized by collaborating institutions	Amount and type of support to collaborating institutions	Network of training institutions to build synergistic linkages, increase awareness about the supply and demand for training, and share training and research materials	The effectiveness of training (as measured by the outcomes identified above) increases.	
	Evaluate the implementation and impact of training materials, event and/or strategy	Evaluation results	<ul style="list-style-type: none"> ■ Improved teaching skills among Centre trainers ■ Improved quality and relevance of training 		
Change training event or strategy based on evaluation information, if change is warranted	Documented change in training or overall training strategy				

¹ Source: Centre descriptions of training activities and programs.

² The long-term outcomes support the overall goals of CGIAR to alleviate hunger and poverty and improve natural resource management.

Main Study

The information gathered in the desk study will provide the platform for the design of the main study. Specifically, the desk study will inform the selection of the strongest and most feasible design from among the alternatives. In addition, it will help identify promising regions for local interviewing, provide local contacts among trainees and their institutions, and prepare panel and advisory group rosters and processes.

A panel will conduct the main study. The current thinking is that there would be a small, three-member panel of distinguished individuals, with expertise on training, evaluation and training/education impact assessment. Eight to ten resource persons in the Regions, selected for their regional expertise and standing would form an advisory group to the panel. These resources persons could also oversee the regional interviewing and data gathering activities in each of 8-10 regions, although in the interest of uniformity and comparability among regions, it will be highly desirable to have at least one member of a central team involved in the actual interviewing in all regions. Combining the professional excellence and coverage of the crucial areas of expertise with regional expertise and familiarity will guarantee a credible final report. This suggested operational model would also keep the panel activities more manageable and flexible, and increase the cost-efficiency of the study.

The iSC Secretariat is proposing a research design for the main study that would use two complementary approaches. Table 2 provides an overview of the kinds of questions that each approach addresses and likely methodologies and Table 3 presents an overview of the strengths and weaknesses of each approach. One of the approaches would use NARS or NARS organizations as the unit of analysis. This piece of the study would provide information on 1) how CGIAR training activities compare to other sources of training used by the NARS, 2) the causal pathways between CGIAR training and NARS effectiveness and impact on the poor and their environments, and 3) the cross-cutting constraints and other issues related to the effects of Centre training in NARS. The second approach would use specific training activities or events as the unit of analysis. The desk study will provide information about the types of training activities that are most prevalent and important. The panel would use that information to first decide what types of training should be studied and then select specific training activities or events of each type to be included in the study. In combination, the two approaches will yield information that can be used to establish funding priorities for training, improve training activities, develop training partnerships with other organizations that provide training in NARS, and leverage comparative advantages of the Centres across regions and types of training activities.

Table 2. Main Study Questions and Methods

Starting Point	Questions Answered	Likely Methodology
NARS	What sources of training are used by NARS? Relative to the other sources, what is the nature and extent of NARS training provided by Centres?	– Survey of employees in selected NARS about the kinds and sources of training they have had in the past ## of years [number to be determined later]
	What are the perceptions of NARS staff about the effectiveness of CGIAR training relative to other sources of training?	
	If a large proportion of the training received by NARS employees comes from CGIAR and there is a perception that CGIAR training is effective, what connections can NARS employees make between their CGIAR training and the effects of their work?	– Individual or small group interviews about the linkage between CGIAR training and NARS outcomes
Training Activities	What are the strengths and weaknesses of specific training activities?	– Survey of trainers and trainees involved in a selected set of training activities
	What do the evaluation data on each activity suggest about the training process and its likely effects?	– Analysis of secondary data
	What are trainee perceptions of the effects of the training on (a) their career, (b) their NARS, (c) alleviation of poverty, and (d) natural resource management?	– Survey of trainees. This could be expanded to include a survey of trainee supervisors as well.

Table 3. Strengths and Weaknesses of Main Study Approaches

Starting Point	Strengths	Weaknesses
NARS	<p><u>Utility:</u> Information about the quality of CGIAR training relative to other sources of training could be used to decide how to allocate training funds.</p> <p><u>Utility:</u> Information about the other sources of training could be used to develop training partnerships or to emphasize the kind of training in which the Centres working with the selected NARS seem to have a competitive edge.</p> <p><u>Attribution:</u> Inferences about the effects of CGIAR training for the selected NARS will probably have a stronger foundation than inferences based on activity-focused survey data. First, by looking at CGIAR training in the context of all the related training received by a NARS, we can make a more sophisticated assessment for the portion of credit due to the Centres for any observed effects. Second, the individual interviews should provide more detailed information that would enable tracking the causal linkages from training through NARS activities to post-NARS outcomes.</p>	<p><u>Resources:</u> Because this focus would involve individual or small group interviews, it would need more time for data collection and analysis.</p> <p><u>Generalizability/Utility:</u> The findings will be limited to the training provided to the NARS selected for the study, unless the NARS are selected for diversity on various characteristics <u>and</u> we found a similar pattern of results across different NARS.</p>
Training Activities	<p><u>Feasibility:</u> The design is straightforward and fairly easy to implement.</p> <p><u>Utility:</u> The results for each of the selected training events are likely to be useful to the Centre that provided the training.</p> <p><u>Utility:</u> Perhaps interesting comparisons could be established. For example, if one set of trainees participated in more than one kind of training, we could compare the trainees' perceptions of effectiveness across the different kinds of training. If we focused on no more than 2 or 3 types of training, we could compare different instances of the same kind of training in different regions. Such comparisons could inform decisions about how to match trainees with appropriate training activities or about the relative challenges to a specific kind of training across regions.</p>	<p><u>Generalizability/Utility:</u> The sample would be limited to a small set of types of activities and to a small set of specific training events within each activity type. As a result, recommendations for improvements may not apply to similar training activities in other Centres or in the same Centre at different times.</p> <p><u>Attribution/Utility:</u> With survey data as the primary source of information, the results are likely to be limited to initial outcomes only.</p>

2.4. Impacts of the CGIAR on Poverty Alleviation

To determine how the poor have benefited from agricultural research, CGIAR centres need a stronger capacity to undertake poverty impact assessments on a continuing basis, not only to identify the conditions under which agricultural research is a sound investment for reducing poverty, but also to improve the targeting of research priorities to the changing needs of the poor. In 1998, the Impact Assessment and Evaluation Group (now SPIA) requested IFPRI to develop and coordinate a system-wide project to strengthen capacity for such poverty assessments.

Background

The first phase of this two-phase project, completed in 1999, involved a review and synthesis of the literature on the links between agricultural research and poverty, and a workshop to develop methodologies for further CGIAR impact studies. The second phase, which began in September 2000, planned 14 case studies to cover a wide range of countries and types of CGIAR research. The first wave of seven studies, launched in 2000, provides partial coverage of CGIAR centres and types of research (e.g., in terms of commodity and regional coverage and scale of impact). The remaining seven studies—intended to target other CGIAR centres and types of research—were put on hold due to lack of funding.

These studies have two main objectives: (1) to test empirically methods for evaluating the impact of agricultural research on poverty in the context of different agricultural technologies and within different country, social, and institutional settings; and (2) to develop a conceptual framework that CGIAR centres can draw upon for impact assessment work, and that will also serve to guide priority-setting and technology design to increase the impacts on poverty. To accomplish these objectives, five of the first seven case studies used the sustainable livelihoods conceptual framework. Key aspects of this framework include:

- expanded understanding of the dimensions of poverty and how to measure it;
- emphasis on vulnerability to natural phenomenon, market shocks and trends, and social conflict, and how this shapes livelihood strategies and choices in technology;
- examination of physical, natural, financial, human, and social capital assets (and the constraints on access to assets) and how people combine these in their livelihood strategies;
- study of the varied range of livelihood activities and strategies that people pursue, recognizing that many different activities are pursued simultaneously, including on- and off- farm work;
- understanding how the institutional environment at the micro and macro levels influences livelihood strategies and outcomes and impacts of interventions;
- looking beyond aggregated household or head counts to consider the significance of social differentiation by class, ethnic group, gender, and other factors.

Each case study focuses on a set of research questions driven by the nature of the technology under study and its context. All questions, however, are informed by the sustainable livelihoods conceptual framework and fall within a set of themes that cuts across the studies. The sustainable livelihoods framework was used to structure the analysis, synthesize the information gathered, and make comparisons across case studies (see Table).

Phase 1, Wave 1 case studies of impact of agricultural research under the IFPRI/SPIA project			
Country	Technology	Case study leader	Lead CGIAR centre
Bangladesh	Modern rice varieties	Mahabub Hussein	IRRI
Bangladesh	Polyculture fishponds	Kelly Hallman	IFPRI
	Improved vegetables		
	Modern rice varieties		
Kenya	Soil Fertility Replenishment	Frank Place	ICRAF
Zimbabwe	Modern maize varieties	John Hoddinott	IFPRI
Mexico	Creolized maize varieties	Mauricio Bellon	CIMMYT
China	Agr. research investments*	Shenggen Fan	IFPRI
India	Agr. research investments*	Shenggen Fan	IFPRI

* Uses econometric analysis of secondary data rather than sustainable livelihoods approach with integrated social and economic impact assessment

The project is managed by IFPRI. An international Social Analysis Team includes researchers from IFPRI, the London School of Economics, and Wageningen University. Each case study is led by a senior researcher (usually an economist) at the respective CGIAR centre, who works with senior social scientists (economists and sociologists) from national research institutes or universities and a team of less experienced social scientists for the purpose of capacity development. An External Advisory Committee meets once a year.

Progress to-date

Many of the case studies were presented at the SPIA/CIMMYT-organized international conference on impact assessment in Costa Rica in February, 2002. Based on the discussions at that conference, this project has begun to consider how to incorporate institutional learning and change (ILAC) into the ongoing studies.

The seven case studies of Wave 1 are now nearing completion. A workshop was held at IFPRI headquarters in Washington DC May 28-30, 2002 to bring together all the case study leaders and social analysis team members, and the Advisory Committee. Draft papers from all case studies using the Sustainable Livelihoods framework were presented and discussed in detail. The discussion generated preliminary findings for the synthesis report and implications for the CGIAR.

The initial plan called for presentation of the findings of Wave 1 at AGM '02. However, with the shortening of the AGM, it has become more difficult to obtain time to present substantive findings. Instead, a major outreach workshop is being planned for the end of Wave 1 in Spring 2003, to present both the individual case studies and synthesis to key representatives of the CGIAR centres, donor organizations, NARs, and a wider public. This will be complemented by a smaller workshop to bring together researchers, donors, and practitioners to develop a strategy for promoting a culture and set of practices conducive to ILAC within the CGIAR. A number of lessons have emerged from the Wave 1 cases and these will be explored at the workshop. The ILAC workshop has the purpose of: (a) familiarizing participants with the meaning of and different approaches to ILAC; (b) discussing ideas for operationalising these ideas in the CGIAR; and (c) beginning to plan ILAC input into Wave 1 follow-up in centres.

Future Work

Initially, it was planned to add a second wave of case studies—to diversify the regions and technologies examined and to expand the number of CGIAR centres involved in this project. Reviewing experience with Wave 1 and funding possibilities, IFPRI has decided, with full

SPIA agreement, that it will not be able to coordinate a second wave of case studies, but will work with interested centres to develop their own case studies, and convene a workshop to develop the concepts and methods for addressing ILAC. In other words, at this point it would appear that the best follow-up would be to help centres institutionalize poverty impact assessments as part of their own, on-going activities. Discussions are underway with IPGRI, CIAT, ICRISAT, CIMMYT, and ICARDA for such follow-up work.

2.5. Conference on Impacts of Agricultural Research and Development: Why Has Impact Assessment Research Not Made More of a Difference?

The main outcomes of this SPIA/iSC and CIMMYT sponsored conference, held in San Jose Costa Rica in February 2002, are reported in a Proceedings document which is currently being finalized for publication. Participants included IA practitioners from 15 Future Harvest Centres, as well as representatives from NARS, public and private universities, multilateral lending organizations, development assistance agencies, NGOs, philanthropic foundations, private corporations, and the media. With over 145 people attending, this conference was the largest gathering in CGIAR history of the international agricultural research IA community. The 4-day conference provided an opportunity for IA professionals to update their knowledge and skills in relation to both conceptual and empirical approaches to impact assessment while engaging in extensive discussion and networking. The program included invited and contributed papers sessions, panel presentations, free discussion sessions, and poster sessions (see table of contents in Annex 1).

Participants highlighted experiences and case studies of impact measurement in the following areas: agricultural productivity; equity, poverty, social health, and nutrition; the environment; and, institutions and human capital. Participants also described novel approaches to hard-to-measure impacts in such areas as: training and capacity-building; institutional strengthening; networking; participatory research; and policy research.

In addition to the Proceedings volume, the Quarterly Journal of International Agriculture will be devoting one entire issue to a set of papers presented at the Conference. These are being edited by a steering committee comprised of CIMMYT and SPIA members. In addition, the SPIA Chair and Secretary are writing an introductory article with the CIMMYT organizers, Drs. Prabhu Pingali and Michael Morris for that issue. Other journals have been contacted to publish selected papers as appropriate.

2.6 Strategic Guidelines for IA in the System

The need for establishing strategic guidelines for IA studies in the CGIAR has been re-enforced at the last two major CGIAR sponsored IA conferences. The strategic guidelines will not be a detailed step-wise 'how to' manual for carrying out IAs, but rather a set of basic principles and discussion of strategic issues (including user needs) for IAs in the System. The document would cover issues that help link what users of IAs need (donors, planners, administrators) with what doers of IAs can do, given resource, and time and data constraints. It would explore basic issues such as the criterion of plausibility in IAs, attribution, development of counterfactuals, log frame and impact pathways analysis generally, and issues related to credibility, feasibility, transparency, and communication. Donors are keenly supportive of developing this set of guidelines, since they that such a document would be helpful to them in establishing internal guidelines for judging IAs and explaining them to funding and political bodies.

Since the last iSC meeting, SPIA has drafted a preliminary annotated outline for these Guidelines. This draft was subsequently revised following a number of helpful comments and suggestions from various individuals, including iSC members, and some interested donors (see Annex 2). In particular, EIARD members and USAID are quite interested and supportive of this work and are expected to be close partners in developing these guidelines. The plan is to bring on a consultant for 3-4 weeks to draft and help finalize guidelines, in collaboration with SPIA members and a range of other stakeholders. Centres will be involved centrally in this activity throughout the process. The major output from this activity will be a set of principles and 'best practices' strategies to guide ex-post impact assessment work done by the CGIAR and its centres.

2.7. CGIAR Benefit - Cost (B-C) Meta-analysis

Since establishment in 1971, the CGIAR community has invested approximately US \$ 6.7 billion (2001 inclusive, 1990 dollars) in various research and research related activities. In an era characterised by “donor fatigue” and scarce development resources, it is relevant to ask: *Do the benefits from CGIAR research justify the total investment in the CGIAR so far?* Although the CGIAR system has been a world leader in documenting research impacts, no previous study has attempted to comprehensively address this question. Thus, this study will represent a first attempt to scale-up extant productivity impacts to a System level.

Background

The present analysis is intended to resolve on a preliminary basis whether the *entire* investment in the CGIAR over time can be justified on the basis of the benefits derived from its proven (and agreed-upon) major successes. One reason for the possible failure of prior impact analyses to offer very convincing evidence for continued donor interest is the criticism that such assessments have focused on the costs and benefits only of research successes, while ignoring the costs of failures or “dry holes.” The present analysis offers an answer to such criticism by compiling reliable estimates of widely-recognised benefits, and comparing such with the *total* investment in the system to-date. Such an approach has already proven successful for other agencies and entities.

To derive cumulative benefit values, the analysis will aggregate the most plausible benefit values from available, credible economic impact assessments for known successes. A preliminary list of studies to be included is provided in Annex 3. Each study will be rigorously reviewed, with key assumptions recorded in a detailed database. All major unsubstantiated claims and values utilised in the included analyses will be scrutinised, and compared against other results published in the peer-reviewed literature, if possible, so as to ensure the credibility of cumulative values. When necessary, included benefit values will be adjusted, so as to compensate for disputable assumptions. Partitioning of benefits, to isolate impacts solely generated by CGIAR activities will be attempted, to the most plausible degree possible, on the basis of several different criteria, depending upon the data presented in the reviewed analysis. Derived benefit values and aggregate CGIAR investment costs will be discounted using a range of plausible discount rates to bring all values to a common point in time.

This analysis will develop a range of plausible minimum benefit levels generated through the efforts of the CGIAR. As such, it can by no means be considered comprehensive. Most of the System’s impacts have not been subjected to thorough assessment, and many do not lend themselves to easy quantification. Impact assessment at the System level is a relatively

young activity, with few resources allocated for effective coordination or synthesis, and, as a consequence, the magnitudes, comprehensiveness, and methodologies for impact assessment differ significantly among centres and research activities. Thus, since reliable economic impact data are presently available for only a very small proportion of the CGIAR's major impacts, the results of this analysis must be considered as preliminary. A second more detailed and time-intensive study is tentatively planned for next year to follow up on these initial results.

Approach, Activities and Progress to Date

A consultant presently is working at the iSC Secretariat to move forward with the initial analysis, under the guidance of the SPIA chair and secretary. By mid-October his initial draft of the study review should be completed, while a final version should be ready by the end of November. Thus far he has:

- Surveyed the literature for studies to be included in the aggregate analysis.
- Determined an overall framework for review.
- Developed specific criteria upon which to assess credibility.
- Created the database for documenting critical assumptions of reviewed analyses (see example in Annex 4 for example).
- Critically reviewed the procured benefit studies.
- Initially compiled, aggregated, deflated and discounted benefit values reported in the reviewed studies.

Pending the provision of sufficient funding, the second phase of the analysis will attempt to develop in a more comprehensive fashion the "highly credible" estimates initially assessed in the first phase, and will attempt to include additional impacts. This phase will include more extensive interaction with the authors of extant IA studies. To facilitate standardisation, included results may be adjusted, recalculated, or updated with more recent data, so as to utilise uniform key assumptions, substantiated with empirical results. Measures for deriving confidence ranges for aggregate estimates derived with multiple sources of uncertainty will be applied. For phase II, the study leader will be someone with a worldwide reputation, a person who is at arms length from the CGIAR, yet has some knowledge of its impacts, mission and goals, and has a wealth of experience working with practical economic analysis of real world activities and their outputs. Depending upon the results of phase II, a third phase may be desirable to facilitate new analyses of significant CGIAR impacts so far lacking precise assessment.

Phase I will result in a database for documenting metadata of reviewed analyses, a preliminary study, and specific recommendations to be encompassed in the strategic guidelines document. The major outputs of phase II would be a published peer reviewed report providing an assessment of a number of benefit-cost measures associated with the entire CGIAR expenditure over time. Sensitivity and probability analyses would be used to generate a range of estimates incorporating different plausible assumptions, while cost-prices or breakeven values would also be calculated using analysis of different scenarios. The study will be peer reviewed; and peer reviewed journal papers and short briefs specifically targeting donors' needs will also be produced.

The initiation of Phase II is contingent upon the funding being allocated to SPIA for this purpose.

2.8 CGIAR Impact in Africa Study follow-up

The major output from this activity will be an updating and extension of the work presented at MTM '01 seeking to document the improved technology and policy impacts of CGIAR and partner agricultural research in sub-Saharan Africa. The analysis will rely on two sets of information and data: field-level impact evidence from case studies and more general CGIAR centre and System level assessments. Another key output, derived from the field study component, will be a longitudinal dataset over an extended number of years. This will be fundamental in capturing a better understanding of the linkages between agricultural research and poverty alleviation.

Hence, this initiative builds on the initial assessment presented at MTM '01 to develop a more systematic and comprehensive assessment of the impacts of the CGIAR and its partners in achieving the goals of reducing poverty, hunger and malnutrition in Africa. A consultant will be hired by SPIA to work closely with the Centres in compiling and synthesizing the available evidence of CGIAR research impacts in Africa.

In addition to completing the more comprehensive desk study, SPIA has been invited to participate in a new initiative to assess impacts of five or six CGIAR centres in about eight specific locations/projects in Africa. The major focus of this initiative is on community level processes of who adopts, where and why, and improved understanding at the household level of what impacts are being generated by new technologies. Major funding for completing the first round of detailed baseline surveys and preliminary and final workshops comes from the Japanese Foundation for Advanced Studies (FASID), but additional support for operational expenses and the second round of surveys is required. SPIA has been asked by the lead centre to contribute to the latter effort in the planning and design phases and, to the extent possible, in providing some financial support. Initial meetings have already been held between ILRI, CIP, ICRAF, CIMMYT and ICRISAT and over the course of the next six months specific project objectives, methods and sites will be identified. SPIA has already provided some input into the planning and overall conceptual framework.

Resources for SPIA participation in this activity have not as yet been allocated, so SPIA input is on hold until resources can be found.

2.9 CGIAR Impact Website and Database Development

Rationale/Importance

The 16 CGIAR Centres share a mandate to increase agricultural productivity in developing countries, alleviate poverty, and enhance the sustainability of the natural resource base on which agriculture depends. Successful achievement of this shared mandate depends on the ability of each of the Centres to identify appropriate research priorities, effectively manage ongoing research, adequately account for resources invested in research and development activities, and build and maintain public support for international agricultural research.

The success of these activities is critically influenced by the quantity and quality of the impact assessment (IA) research carried out by the Centres. It is important that the CGIAR establish an effective mechanism to promote “best practices” in IA research, disseminate IA research results, and foster dialogue between IA practitioners, both within the CGIAR and throughout the larger research and development communities. The Centres additionally need to improve their ability to learn from experience and to demonstrate to donors, partners, and intended beneficiaries that they are committed to using the results of IA research for

organizational learning purposes. Amongst key stakeholders in the CGIAR, and particularly within the Centres, there is widespread interest in and support for developing a CGIAR Impacts website.

Description of Work Planned

The website interface (structure and functions) will be developed following consultation with stakeholders and potential users, including IA practitioners, scientists and research managers, and professional communicators. IT specialists and website designers will provide guidance on design and technical implementation issues. The website would be managed by SPIA and technically operated by one of the centres. CIMMYT was proposed initially, since they have considerable experience and capacity.

Major Outputs

At full development the website would have five functions: (a) serve as a central focal point for IAs in the System, (b) provide general awareness for investors and the public through provision of one page summaries of IAs and synthesis documents; (c) include full versions of peer reviewed IAs (or links to); (d) be a depository of data that could be used in a variety of IA activities; and (e) provide an interactive mechanisms for those involved in IA inside and outside the system. In addition, the website will provide links to a wide range of resources, including: descriptions of “best practices” in IA research; comprehensive bibliography of IA literature; noteworthy results generated by IA research; database of statistical indicators used by IA practitioners; photographic and video images of agricultural research and their impacts; bulletin board/discussion room facilities; directory of IA practitioners; calendar of upcoming events of interest to the IA community; and, list serve facility.

At the present time, no resources have been available to initiate this activity beyond the planning phase described above.

2.10 CGIAR Centres' participation in the African Evaluation Association Conference from 10-14 June 2002 in Nairobi, Kenya

Although this was a centre-initiated and managed activity and SPIA had limited involvement, it is included here as a good example of cross centre activities in impact assessment that SPIA is and should be supporting. Unfortunately, with the available SPIA budget, it was not possible to provide the type of support it deserved, although the iSC/SPIA Secretariat provided advice and some nominal financial support.

An informal committee of IA focal points from IITA, WARDA, ILRI and IPGRI and the SPIA/iSC coordinated the agriculture strand the African Evaluation Association (AfEA) conference held on June 10-14, 2002 in Nairobi, Kenya. The main objectives of the conference was to strengthen evaluation capacity in Africa, build contacts between evaluators in Africa and create support for the 16 existing African national networks for evaluation. The conference provided an opportunity for the CGIAR centres to network with potential partners and collaborators in Africa, highlight the work of the CGIAR within a larger development-oriented group, and improve the capacity of CGIAR staff and counterparts in evaluation and impact assessment. Although much of the organization and participation costs for attending the conference were borne by the centres themselves, the CGIAR Secretariat also provided financial support. This enabled some CGIAR partners in the region to attend and make presentations who otherwise would not have been able to do so.

The strand comprised sixteen technical papers presented over a four-day period. The strand was attended by the presenters and the organizing committee members who made up the core participants in the strand, plus various others from the conference or from local organizations. On average the daily attendance during the strand was between twenty and twenty-five people.

A key theme of the strand was to investigate the broad range of evaluation options available to assess agricultural research. Different evaluation experiences were presented and then participants discussed the strengths and weaknesses of different the approaches. Presentations included evaluations in three African sub-regions. Six papers were from East Africa, seven from West Africa, and two from Southern/Central/East Africa. One paper had a continent-wide perspective. The papers presented experiences from Kenya, Cote d'Ivoire, Uganda, Burundi, Zimbabwe, Nigeria, Ghana, Ethiopia, Benin, Senegal, Mauritania and Tanzania.

Strand papers (see Annex 5) presented evaluations of different aspects of agricultural research and development including:

- Capacity development and organization performance
- Sustainable agricultural production systems
- Crop improvement
- Crop management
- Agricultural policy analysis
- Project development and review

A variety of different evaluation approaches were employed in the studies including:

- Impact assessment
- Effectiveness evaluation
- Planning processes
- Monitoring
- Cost efficiency/Economic analysis

All papers from the strand are available on the conference web site. The three papers shown below will be summarized and included in the conference proceedings.

- Principles of evaluation: Methodological lessons derived from East and Central Africa, in the context of ASARECA by Adiel Mbabu and G. Ebong.
- Evaluating the impact of agricultural research and development: Future Harvest Research Centre Approaches by Patti Kristjanson *et al.*
- Assessment of the impact of agro-forestry based soil fertility replenishment interventions on the poor in Western Kenya by Mary Omosa.

SPIA congratulates the centres, particularly Jamie Watts from IPGRI for her leadership on this initiative, and the AEA for undertaking this activity and bringing it to a successful completion.

3. FUTURE OF IMPACT ASSESSMENT ACTIVITY IN THE CGIAR

3.1 Context

The CGIAR members and the Cosponsors decided at MTM '99 in Beijing that the systemwide IA function (previously carried out by the independent IAEG) should be integrated with the work of TAC in order to gain efficiency and take advantage of the synergies with the System's forward planning and its monitoring and evaluation functions, both of which were housed in TAC. This view was confirmed by the 2001 SC working group in its recommendations on the SC. It has now been further confirmed by the 2002 working group proposing the structure and functions of the new Science Council.

The iSC (and SPIA within it) agree that the three functions of (i) forward planning, (ii) monitoring and evaluation (M&E), and (iii) ex-post IA should be closely associated so that each can build on synergies and complementarities with the others. At the same time, the iSC was sensitive to the wish of the Group that the IA function should retain its independence and transparency and, hence, credibility.

Moving ahead to optimize the contributions of science to achieving the goals of the System requires an iterative process of successive approximations as new results emerge, as new science evolves, and as the evolving issues are understood better. In this process, planning requires learning from the present progress (through M&E) and from the impacts of past activity. At the same time, evaluation of the relative effectiveness of on-going activity, and assessment of the impacts of past application of science requires knowledge of what has happened, what is happening now, and what likely will and should happen in the future, i.e., the context. Thus, close and regular linkages between the three functions are essential.

The System, in its systemwide IA activities, initially through the IAEG and presently through SPIA as part of the iSC, has focused mostly on major cross-centre impact assessments. Thus, there have been assessments of the System's germplasm improvement impacts (Evenson *et al.* report), environmental impacts (Nelson and Maredia and Maredia and Pingali reports), and IPM activities (Waibel report). On-going SPIA/iSC assessments are focusing on the CGIAR's impacts on poverty alleviation, the impacts of the System's capacity strengthening activities, and the overall relationship between the entire System's costs and its impacts on or benefits to society. In addition, there have been various information and support functions carried out over the past years, including several workshops for centres to consider where the system and its centres should be going in the field of IA, and an international conference, bringing together CGIAR investors and IA users with specialists from the centres and from outside the System to focus on how IA can be used more effectively.

3.2 Key Impact Assessment Needs of the System

Within this broader context of CGIAR forward planning, monitoring and evaluation of on-going programs, and accountability to investors for past use of their resources, the iSC has on several occasions confirmed its belief that the System still needs:

- (a) evidence of the impacts of its various completed and on-going Systemwide programs and related activities;
- (b) impact information useful in understanding appropriate and desirable changes in direction of the System's programs;

- (c) mechanisms for strengthening the capacity to do impact assessment in the System's centres; and
- (d) to support centres in the further development of an "impact culture" or focus in the Centres and their partners.

Given these basic system level needs, SPIA concludes that there is a continuing need for four main ex post impact assessment functions at the System level within the CGIAR's impact assessment unit. These include:

- (1) ***Conducting high quality, independent impact assessments*** to provide results useful to (a) investors, in justifying their investments; and (b) System management and centres in planning their programs and investments and developing and allocating budgets. (Independence here refers to being done by individuals not associated with the research being assessed and having no conflicts of interest that could affect the assessment).
- (2) ***Tracking information*** related to the impacts associated with centre and cross centre activities. This could involve routine data collection; and developing, maintaining and managing, in collaboration with the planning and monitoring and evaluation units, an appropriate data base/MIS for the System that would provide annual updates on accomplishments (training, research, etc.) in addition to data on other indicators of relevance in understanding the impacts of the System's outputs and processes.
- (3) ***Developing methodologies, providing training in their use, and providing advice and facilitation for centres as needed***, e.g., in terms of setting up programs and projects in such a way as to make tracking and analyzing impacts more feasible, transparent and of high quality.³ This would include the "certification" of quality of internal IAs and organizing and "certifying" quality of external IAs. Ideally, this function would involve the establishment and maintenance of a CGIAR wide IA web site that also would be open to all outside entities with an interest and involvement in IA related to agricultural research and training.
- (4) ***Delivering and facilitating the most effective use of the outputs of the IA entity***, e.g., facilitating centre interaction and learning, and developing an effective impact culture in the centres. It also would involve providing insights to investors on what is and is not feasible in terms of carrying out IAs for such activities as natural resources management, social science research and capacity strengthening.

To carry out the four functions described, SPIA concludes, based on a review of past Systemwide IA activity and experience, that five key areas of collaboration and cooperation will need to be targeted more effectively in the future. These relate to:

- (1) working more closely with centres through collaborative and cooperative activities;
- (2) working more closely with the System's science monitoring and evaluation activities to ensure that the complementarities between IA and M&E are fully realized; (in fact, SPIA and SCOER have carried out a number of joint activities);

³ It should be stressed that the implication of this statement is not that the centres are lacking in high quality impact assessment capacity. Rather, the thinking here is that a central entity can facilitate interaction among centres, gain access with System level resources to expertise needed by all centres, and provide a clearing house for information and documentation of use to all centres. In a sense, this central entity will provide "System level public goods."

- (3) working more closely with the forward looking, system level planning activities, including particularly in monitoring the evolving challenge program experience;
- (4) opening up more broadly to the IA world outside the CGIAR, through networking, a web site, outsourcing and putting some future assessments out for bid on a broader “request for proposal” basis; and,
- (5) setting standards and helping develop a more systematic process to assure high quality, independent scientific peer review of the analytical ex-post IA studies produced by SPIA and the centres.

3.3 Transition: Activities in the Pipeline

Given this overall context of necessary functions and the targeting of collaborative arrangements needed to make an impact assessment unit more effective and efficient in meeting CGIAR needs, it also has to be recognized that a smooth and active transition to the new Science Council’s impact assessment program requires consideration of what has gone on in the past. In this regard, the iSC also considered and endorsed, at iSC83, the portfolio of on-going SPIA activities and the approaches to bringing them to completion. These include (as described in Section 2):

1. A stripe review of the **impacts on NARS of CGIAR training** activities (joint with SCOER/iSC).
2. A meta **analysis of the costs and benefits associated with the entire CGIAR portfolio of investments** since its inception.
3. Developing **Strategic guidelines for conducting impact assessments** in the CGIAR.
4. An assessment of the **impacts of the CGIAR on poverty** and the strengthening of capacity in the CGIAR centres to do work in this area.
5. The **proceedings (in several forms) from the SPIA/CIMMYT international conference on impact assessment** held in Costa Rica in February of 2002.
6. A CGIAR wide **impact assessment website**.
7. A follow up study of the **impacts of the CGIAR in Africa**.

It is fully the intention of SPIA to continue these activities and to the extent possible, given a very limited budget, bring them to completion before the new Science Council takes over, ostensibly sometime towards the middle of 2003. Progress reports on each activity has been presented in Section 2. These include the needed and intended future work, as well as comments on the resources constraints standing in the way of successful completion of many of the activities.

At iSC83 (August of 2002), the iSC also considered an indicative portfolio of planned activities for the future, assessments considered worth undertaking, but not yet started. At the present time, the intention is to pass this list, and background analyses where available, on to the new Science Council for its consideration. In this regard, the following activities (not in any order of priority) might productively be considered by SPIA’s successor and the Group over the next few years:

- Assess the **impacts of the Alternatives to Slash and Burn (ASB)** program; the ASB is one of the CGIAR's most advanced systemwide programmes (SWPs). It offers good potential for evaluation and assessment of its impacts in terms of CGIAR goals. Although evaluated earlier along with 7 other ecoregional SWPs in the context of the

TAC/iSC Ecoregional SWP review, the proposed study will be more in depth and specifically assess impacts, as well as standards of relevance and quality of science. The study would be jointly organized with the science monitoring and evaluation group within the SC.

- Assess the **impacts of the CGIAR in Latin America and in Asia**; these would be parallel studies to one described above for Africa.
- Assess the **impacts of the System's natural resources management activities**; this would include consideration across centres of work related to integrated natural resources management (INRM) research and component research related to water, agroforestry, forestry, fisheries and livestock research, focusing initially on methods and processes. The iSC already is moving ahead with a series of mini case studies illustrating the approaches to and results from INRM research in the System.
- Develop and apply IA methods for **participatory research/breeding** (specific assessments of activities of course should be done through the partners involved in the activities).
- Continue and expand the assessment of the **impacts of the capacity strengthening activities** of the System, extending out from the on-going assessment of training to other types of capacity strengthening activities in the System and to field work involving systematic collection of lessons learnt from those who have been trained and the NARS groups in which they work.
- Participate with IFPRI and others in bringing **poverty impact assessment and "institutional learning and change" (ILAC) strategies and approaches** more into the mainstream of centres activities.
- Initiate assessment of **policy research impacts** across the System, working closely with centres and consortia dealing with this topic; this includes actively supporting and participating in a **new consortium** dealing with assessment of the impacts of policy-oriented social science research (POSSR). (An international consortium of researchers and other professionals interested in measuring and enhancing the impacts of Policy-Oriented Social Science Research was agreed upon at a workshop, hosted by the Government of the Netherlands and organized by IFPRI. The SPIA attended the meeting. SPIA members should be actively involved in the early development of this consortium and stay actively involved as it develops).
- Look at the impacts of the System's **biodiversity activities**.
- **Follow up on the Evenson/Gollin work on CGI impacts**, perhaps (a) doing a single crop more in depth; (b) looking at other crops; or (c) assessing impacts in one region/country in more detail, e.g., Latin America or South Asia.

In most of the cases listed, preliminary discussions and activities were started during late 2001 or the first part of 2002 in order to get stakeholder input. However, SPIA would welcome comments from Members on any and all of these activities. All these activities are considered important ones in the minds of various groups of stakeholders. They should help in moving CGIAR understanding of Systemwide impacts ahead and in terms of providing the

Science Council, Executive Council and the System Office with insights to use in planning for the future of the CGIAR.

3.4. Concluding Comment

The SPIA, and more broadly the iSC, continue to see IA as a central function of the new SC, in agreement with the recommendation of the 2002 SC working group. The synergies between the overall mandate and the functions needed to guard the quality as well as the relevance of science are strong. Understanding impacts of past activity provides central input for planning how to improve the efficiency, effectiveness, quality and relevance of on going and future science in the CGIAR System.

During the recent, somewhat lengthy process of discussions and studies leading to institutional change within the System, SPIA has not been in a position to start major new initiatives. When this process of change has been decided on at AGM02, there is an urgent need to again become active in major systemwide assessment activities that can provide the CGIAR and its stakeholders with new perspectives on the major impacts derived from investments in the System. As indicated in the section above, a number of such potential activities already have been thought through by SPIA.

Table of Contents for the International Conference on Impacts of Agricultural Research and Development: “Why Has Impacts Assessment Research Not Made More Of A Difference?” Proceedings of a conference organized by SPIA/iSC and CIMMYT, 4-7 February 2002, San José, Costa Rica

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Strategic Guidelines for Conducting ex-post IA in the CGIAR

SPIA Draft Annotated Outline

I. Introduction

1.1 *Justification*

The need for establishing a set of strategic guidelines for ex-post impact assessment (IA) studies in the CGIAR is long overdue and has been re-enforced at the last two major CGIAR IA conferences⁴.

- Not a detailed step-wise “how to” manual for carrying out ex-post IAs, but rather lays out the basic principles and strategic issues.
- Donors keenly supportive -- helpful in setting up internal guidelines for judging IAs and explaining them to funding and political bodies.
- A common framework would facilitate more effective system-level integration, synthesis, and comparison of centre-level assessments.

1.2 *Challenge/Difficulty*

Despite the multitude of IA studies done in the CGIAR to-date, documenting in a convincing way the effects of agricultural research is neither simple nor straightforward.

- Outcomes of interest, such as farm income, food and nutritional security, and environmental sustainability, are determined by many variables other than agricultural research and research related activities.
- Absence of high quality data from primary or secondary sources makes the task especially difficult.

1.3 *Objective*

Formulate a set of principles and strategic guidelines for ex-post IA in the CGIAR:

- Addressing key issues such as defining user needs, plausibility criteria, attribution, development of counterfactuals, logframe and impact pathway analysis, credibility issues, transparency, and communication.
- Define 'principles' of good practice under each when appropriate.
- Highlight good (credible) studies as models to follow, working towards "best practices".

⁴ The SPIA-organized workshop on The Future of IA in the CGIAR: Needs, Constraints and Options, 3-5 May 2000, FAO, Rome; and The CIMMYT/SPIA int'l conference on the Impacts of Agricultural Research and Development, 4-7 February 2002, San Jose, Costa Rica.

II. User Needs

Ex-post IA research has multiple uses including improving accountability, raising awareness, generating support, and improving research management. Given the diversity of uses among potential stakeholders, it is essential that IA be demand-driven and realistic objectives defined up front. This can only be achieved through dialogue between those requiring IAs and those carrying them out. Who are the former and what are their primary requirements?

2.1 *Donors*

- Primary: accountability and/or justification for future investments
 - “we need all kinds of impact information in various forms” (Dana Dalrymple)
- Secondary: useful feedback

2.2 *Govts / policy makers*

- Evidence of sound investment
- Planning and resource allocation

2.3 *Research managers and scientists*

- Re-assessing on-going programmes
- Feeding it to ex-ante priority setting

Decision makers typically require three types of impact information in order to make informed decisions. These relate to impact information for planning and priority setting (ex-ante IA), impact information from on-going activities (monitoring and evaluation) and impact information from past activities (ex-post IA). The focus here is on the latter.

III. What is impact assessment

3.1 *Definition of terms*

- ex-post vs. ex-ante IA
- adoption studies (partial IA) vs. comprehensive IA
- IA vs Evaluation
 - Different types of assessment and evaluation have different functions and should be executed by different actors in the System. IA should not be confused with programme evaluation.
 - According to a well known textbook on evaluation (Rossi *et al.* 1999), "IA are undertaken to find out whether interventions actually produced the intended effects".
 - ex-ante IA (for programme planning) → done internally within projects
 - ex-post IA (for accountability purposes) → done externally (independence essential)

3.2 *Defining the principal agents, the intermediaries and the target beneficiaries, i.e., whose impact to be assessed.*

IV. DEFINING BASIC PRINCIPLES OF GOOD PRACTICE (OR, ENHANCING THE CREDIBILITY OF IA BY ESTABLISHING LINKAGES BETWEEN AG RESEARCH AND OBSERVED EFFECTS--THAT ARE IN TURN RELATED TO CGIAR GOALS)

Note: While following such practices may not guarantee the plausibility of one's claims, it provides the foundation for building a credible argument.

4.1 *Programme Theory: Defining the Impact Pathway*

4.1.1 Logical framework (theory of action) -- logical linkages between activities and outcomes (adapted from Figure 2.1 in Cooksey, 1997). Similar in concept to the "programme theory" (= sets of assumptions underlying policies and indicating why these policies are believed to have an impact):

- Step 1. Describing project activities (i.e., the source of impact)
- Step 2. Project outputs generated
- Step 3. Project outputs utilized (e.g., new seeds, new technology, information)
 - uptake by institutional clients (NARS, etc.)
 - adoption by beneficiaries/target groups (farmers)
- Step 4. Direct and indirect outcomes from adoption (e.g., yields, better policies)
- Step 5. CGIAR-goal related outcomes/long-range benefits realised (e.g. increased incomes for poor households, improved nutrition, healthier environment)
- (also see p. 8, Krall *et al.*, 2002)

These benefits, both direct/intermediate and ultimate must be related to the Mission and overall purpose of the Centre/CGIAR.

4.1.2 Impact criteria and indicators defined clearly

- Types of impact (positive AND unintended negative ones⁵)
 - Economic (food supply, economic returns)
 - Social (poverty, nutrition, education)
 - Environmental (resource base, water, air)
 - Institutional (NARS capacity, policies)
 - Integrated / Multi-disciplinary assessment
- Indicators/proxies
 - Economic (yield/production, producer/consumer surplus, RoR, B-C ratios)*
 - Social (income, poverty #s, calorie consumption, literacy)
 - Environmental (soil status, water pollutants, etc.)
 - Institutional (trained staff, new policies, etc.)
 - Unintended (biodiversity loss / groundwater contamination)

*Note, many of the cost – benefit or IRR studies have measured benefits in terms of overall estimated economic surplus. As most CGIAR centres' mission statements explicitly target alleviation of poverty and enhancing food security, B-C studies only indirectly address the impact indicator of interest. Logical frameworks can argue that reasonable linkages exist

⁵ This may include the usual negative environmental externalities, e.g., groundwater contamination, indirect negative effects on non-adopters (falling output prices) and losses due to inappropriate utilization of the technology in certain situations (the 'poison well' phenomenon).

between these intermediate effects and the ultimate, higher level aggregate outcomes.

4.1.3 Distinguishing between the direct/intermediate vs. long-range outcomes/impacts, e.g., how far down the chain is the analysis going?

- Krall *et al.* (2002) believes the main attribution (cause-and-effect) gap is here, between intermediate impacts (increased yields) and higher level aggregate benefits (greater regional food security).
- This is supported by the study of Cooksey in 1997 who concluded that most CGIAR centres impact studies had no information and made no claims about long-range outcomes, such as the alleviation of poverty and conservation of the natural resource base. The few centres that did make statements about long-range outcomes had relatively weak data to support such claims. Only one impact study (from IPGRI) provided supporting evidence for making the claim about long-range outcomes.

4.2 *Empirical measurement of changes in the impact indicator of interest (yield, income, food security, etc.)*

4.2.1 Methods {specify by economic vs. social vs. institutional vs. environmental??}

- Quantitative
 - Economic surplus
 - Econometric analysis
 - Survey
 - Analysis of secondary data
- Qualitative
 - Case study
 - Key informant/target group surveys
 - Expert opinion
 - Anecdotal
- Mixed
 - e.g., IFPRI poverty case studies

4.2.2 Methodological rigour

- Appropriate tools used
- Assumed values are adequately justified

4.2.3 Discounting benefits and costs

- Defining and standardising opportunity costs for capital

4.2.4 Sensitivity analysis to test critical assumptions

- Selecting inputs for analysis
- Accounting for cumulative effects of covariance

4.2.5 Limitations

4.3 *Impact Monitoring*

Relates to situations where impact of interest cannot be adequately measured or empirically related to the research outcome, but, where those research products are known to positively affect or contribute to it are measurable.

- Establishment of the logical framework linking expected outputs of the Centre to its overall mission and purpose is essential.
- Monitoring of intermediate products and outputs from research (e.g., publications) as indicators of steps made toward achieving the longer range outcomes of poverty alleviation and food security (the ultimate CGIAR goals)

4.4 *Impact Pathway Analysis*

4.4.1 The problem: The impacts/outcomes of interest, such as farm income, food security, etc., are determined by many variables other than the useful products of ag research. How to 'attribute' / measure a research's role in the effect?

4.4.2 Impact pathway defined (logical framework, impact indicators) [see above]

4.4.3 Conceptual boundaries of analysis defined

4.4.4 Spatial and temporal dimensions of the IA analysis defined

- Time period depends on main objective of IA
 - long term (15-20 years) for comprehensive aggregate level effects
 - short term (5 years) for use by research managers in decision making
- Spatial dimension
 - geographical mandate/target of the research programme
- Spill over effects

4.4.5 Long-range/comprehensive or intermediate impact indicators measured or monitored

4.4.6 Develop/test plausible cause-and-effect relationships between linkages (as specified in the logical framework)

- Development of the counterfactual
 - with and without (use of models)
 - before and after (baseline surveys)
- Multi-source verification and synthesis of evidence
 - to limit bias from any single source or method
 - assess: points of corroboration and points of inconsistency
- Data gaps and cautious reporting of conclusions
 - accuracy-related
 - geographic coverage

4.4.7 Stakeholder / Intended beneficiaries' perspectives

- Other informed opinion that support or contest the findings
- Degree of consistency

4.5 *Scaling up*

- Basis for extrapolation
- Sampling issues
- Cumulative and sequential impacts

4.6 *Measuring full programme costs*

- Research and extension costs relevant to the development and dissemination of the technologies being assessed.
- IARC and NARS costs in the development and dissemination of the technologies
- Indirect costs (administration, depreciation, complementary services)

4.7 *Ensuring transparency*

4.8 *Dealing with attribution issues*

4.8.1 When attribution is important and

- Relatively easy to do: When few actors involved and the research activity to research output to intended outcome/impact chain is reasonably straightforward and linear. When important but difficult to do.
- Relatively difficult to do: When many partners involved, many playing an important role in a complex process involving others outside agriculture.

4.8.2 When attribution is not so important:

- Principle: The more effective a centre-NARS partnership is, the less desirable and feasible it is to attempt to attribute impacts separately to each partner. Indeed, in some cases, attempting attribution could be counterproductive and put at risk good working relationships.

4.8.3 Assessment of other mitigating factors (infrastructure, markets, policies, weather)

4.9 *Cost effectiveness*

- quick and clean
- trade-offs

4.10 *Independence/Credibility*

- Who conducts the ex-post IA?
 - IA for mainly accountability purposes requires external assessment, i.e. external to the programme being assessed.
 - by a unit outside the organization, to achieve maximum credibility
 - or from within the organization but outside the research programme; though the former is perceived to be more credible. (Consider third party audit)
 - important aspect is that it is perceived to be 'independent', without bias and credible.
- Role of NARS
- Role of intended beneficiaries

4.11 *Drawing lessons*

- shortcomings/honest attribution
- elucidating key constraints and effects thereof
- lessons learnt

4.12 *Communication*

- clear strategy for communication linked to specific user needs (those requiring IA), and others
 - for political decision makers, results of IA in short, transparent and readable form
 - effective dissemination of information / publicizing results
- “We need all kinds of impact information in various forms. We need summary information for administrators and Congress, and we need more detailed information to use with colleagues and for ourselves in presenting the work of the IARCs and in making our own internal budget decisions”. (Dana Dalrymple, USAID 2002)

V. MODELS TO FOLLOW

5.1 *IFPRI policy impact studies*

5.2 *IITA Impact series*

5.3 *Others*

VI. QUALIFIERS/LIMITATIONS

6.1 *Data constraints*

6.2 *Hard-to-measure impacts*

- some impacts can't be measured cost effectively (doesn't mean impact isn't there)
- valuation of non or partially priced goods and services

6.3 *Others*

VII. FUTURE EMPHASES

7.1 *Multidisciplinary Ias*

7.2 *Cost effectiveness (low cost, data collection)*

Coverage of Studies Included in B-C Meta-Analysis

Research Emphasis Coverage by Large-Scale Plausible Impact Analyses									Total Benefit	
Commodities		1970	1975	1980	1985	1990	1995	2000	(billion 1990\$)	
	Barley			Hassan et al., 2002						0.74
	Beans			Johnson et al., 2002						1.28
	Cassava			Johnson et al., 2002						0.56
	Chickpea									
	Coconut									
	Cowpea									
	Groundnut									
	Lentil									
	Maize						1		0.14*	
	Millet									
	Pigeonpea			Bantilan & Joshi, 1996						0.22
	Plantain									
	Potato									
	Rice - IRRI					2		3	1.90*/9.83	
	Rice - CIAT	Sanint & Wood, 1998								7.23
	Rice - WARDA							4	0.35	
	Sorghum									
	Soybean									
	Sweetpotato						5		0.25*	
	Wheat - durum							6		
	Wheat - spring bread		Byerlee & Traxler, 1995						6	9.12*/1.49
	Yam									
Livestock	Disease control									
	Genetic improvement									
	Pasture/forages									
Fisheries	Aquaculture									
	Coastal management									
	Genetic improvement									

1. Morris et al., 2001 2. Evenson, 1998; Evenson & Gollin, 1997 3. Hossain et al., in press 4. Dalton & Guei, 1998 5. Fuglie et al., 1995 6. Heisey et al., 1997

*benefits attributed ONLY to IARC research

Sample Database Record from B-C Meta-Analysis

Study Title:

The Impact of International and National Investment in Barley Germplasm Improvement in the Developing Countries

Author:

Hassan, A. Aw, K. Shideed, S. Ceccarelli, W. Erskine, S. Grando and R. Tutwiler

Author Institution(s)

ICARDA

Year of Study:

2002 (forthcoming)

Citation:

Hassan, A. Aw, K. Shideed, S. Ceccarelli, W. Erskine, S. Grando and R. Tutwiler. forthcoming. The Impact of International and National Investment in Barley Germplasm Improvement in the Developing Countries. In Crop Variety Improvement and its Effect on Productivity: The Impact of International Agricultural Research. Oxon, U.K.: CABI

Geographic Coverage:

Global

Description of Innovation:

International barley research was initiated with the inception of ICARDA in 1977. Between 1980 and 1999, 111 barley varieties have been released in 23 countries. Supplementing these releases are international nurseries and germplasm exchange programmes, as well as training, collaborative research projects, and various kinds of exchanges. Roughly 78% of all barley varieties released in the 23 countries have been ICARDS related crosses.

Overall Advantage of Innovation:

Yields have been improved by between 10 and 32% for improved varieties.

Indicator of Productivity Changes:

k-factor

Measurement Method for Productivity Changes:

A combination of on-farm trials and experiment station data are utilised for deriving the k-factor for productivity increases. No further details are provided about the sources of these data.

Disaggregation of Productivity Changes:

by country

Measurement Method for Utilisation/Adoption:

Based on NARS data, average adoption of improved barley cultivars is estimated for 1980-1997.

Changes in Inputs, Crop Management Considered:

none, as it is assumed that the performance of rainfed improved barley cultivars is not dependant upon input

Mitigating Factors Considered:

none

Basis of Credit Partitioning:

none

Other Actors Attributed:

NARS

CGIAR Role in Development of Innovation:

ICARDA advanced lines and released cultivars comprise the majority of NARS crossing blocks, while ICARDA parents have contributed 35-41% to NARS crosses.

Basis of Counterfactual:

N/A

Research Partners Included in Counterfactual:

N/A

Disaggregation of Counterfactual:

N/A

Basis of Input Prices:

n/a

Basis of Commodity Prices:

average c.i.f. national prices from the FAO Trade Yearbook

Elasticity of Supply:

0.30

Elasticity of Demand:

not specified

Assumed Lag Period (yrs):**Start Year of Benefits:**

1980

End Year of Benefits:

1997

Base Year of Study:

1990

Factors Tested in Sensitivity Analysis:

N/A

Total NPV Under Main Assumptions:

483000000

Most Credible NPV Estimate:

248000000

Low Range of Total NPV:

0

High Range of Total NPV:

0

Main IARC NPV:

0

Main Peak Annual Benefits:

105000000

Low Peak Ann Benefits:

0

High Peak Ann Benefits:

0

Assumptions for Most Credible NPV Estimate:

This estimate was derived by taking the annual benefits in 1990 dollars and adjusting them to a 1990 base year with a 3% real rate, multiplying by 1/3 to partition the MV adoption benefits, and aggregating the adjusted figures. The latter is based on the fact that over one third of the parents of NARS crosses were ICARDA advanced lines, and another 38% of MV barley area is planted to ICARDA crosses.

Comments on Analysis:

The study's lack of specificity regarding the methodologies utilised does not permit a complete assessment of study quality and techniques applied.

**Agenda for the Agricultural Research and Development Strand of the African
Evaluation Association Conference,
June 10-14, 2002**

Monday June 10	Presenter	Title
Chair: Kwesi Atta-Krah		
1300-1315	Atta-Krah, Kwesi	Welcome to Agriculture and Development Strand, introductions and opening remarks
1315-1345	Kristjanson, Patti <i>et al</i>	Evaluating the impact of agricultural research and development: Future Harvest Research Centre Approaches
1345-1415	Waithaka, Michael, F. Murithi, T. Cusack, E.A. Mukisira, P.W. Mwangi, N.M. Ng'and'a and J.W. Wamuongo	Evaluation of the impact of KARI's research programmes
1415-1430	Mbabu, Adiel and G. Ebong	Principles of evaluation: Methodological lessons derived from East and Central Africa, in the context of ASARECA
1430-1500		Coffee break
1500-1530	Mengistie, Getachew	Process and institutional synergies for development of national plant genetic resources policies in Africa: Ethiopia case study
1530-1600	Ibro, Germaine, B. Moussa, A. Kamaye and T. Nouhoheflin	Analyse Coût -bénéfice des Technologies du Niébé : Une Application de la Matrice d'Analyse des Politiques (MAP)
Tuesday June 11		
Chair: Patti Kristjanson		
1300-1330	Diagne, Aliou, K. Kouadio Arsene and R. Gue	The impact of modern varieties on rice biodiversity
1330-1400	Omosa, Mary	Assessment of the impact of agro-forestry based soil fertility replenishment interventions on the poor in Western Kenya
1400-1430	Koné, Miaman	Analyse de l'impact de la vulgarisation agricole sur l'efficacité économique des paysans dans le Nord-Ouest et l'Ouest de la Côte d'Ivoire: cas des Départements de Touba et de Biankouma
1430-1500		Coffee Break
1500-1530	Fall, Amadou Abdoulaye	Impact économique de la recherché sur le riz dans deux pays de l'afrique de l'ouest : Senegal & Mauritanie
1530-1600		Discussion
Wednesday June 12		
Chair: Boru Douthwaite		
1300-1330	Igue, Alice	Gender-based management and conservation of local plant genetic resources and their contribution to food security and poverty reduction in Benin
1330-1400	Runyoro, Gerald and A. Gallez	Impact of superior banana varieties on food security and income for small scale farmers in Kagera Region, Tanzania
1400-1430	Nyende, Paul and R. Delve	Farmer participatory evaluation of legume cover crop and biomass transfer technologies
1430-1500		Coffee Break
1500-1530	Ndiema, Alice, and M. Kinyua	Socio-economic factors affecting adoption of some selected wheat production technologies by farmers in Njoro and Rongia divisions of Nakuru district of Kenya
1530-1600		Discussion

Thursday June 13		
Chair: Aliou Diagne		
1300-1330	Bennett-Lartey, Samuel, R. Vodouhe, and J. Watts	Evaluation of capacity development of the Plant Genetic Resources Centre in Ghana
1330-1400	Remington, Tom, L. Sperling, P. Bramel, R. Best, S. David and R. Kirby	Enhancing the capacity for USAID/OFDA to evaluate seed-based agriculture recovery proposals
1400-1430	Douthwaite, Boru, S. Schulz and A. Olanrewaju	Bridging the attribution gap: An evaluation approach for achieving and attributing impact in African agriculture
1430-1500		Coffee Break
1500-1530		Discussion
1530-1545	Watts, Jamie	Evaluation of the strand and brief discussion of its future
1545-1600	Atta-Krah, Kwesi	Closure of strand

Proposed New Activities: 2003 and Beyond

CGIAR Impacts Website

It is important that the CGIAR establish an effective mechanism to promote "best practices" in IA research, disseminate IA research results, and foster dialogue between IA practitioners, both within the CGIAR, and throughout the larger research and development communities. Amongst key stakeholders in the CGIAR, and particularly within the Centres, there is widespread interest in and support for developing a CGIAR Impacts website. This website would be managed by SPIA and technically operated by one of the centres (CIMMYT was proposed initially, since they have considerable experience and capacity). At full development it would have five functions: (a) serve as a central focal point for IAs in the System, (b) provide general awareness for investors and the public through provision of one page summaries of IAs and synthesis documents; (c) include full versions of peer reviewed IAs or links to such if found elsewhere on the web; (d) be a depository of data that could be used in a variety of IA activities; and (e) provide an interactive mechanisms for those involved in IA in and outside the system.

CGIAR Impact in Africa follow-up

At MTM 01, SPIA/TAC presented the available information on the contributions of the CGIAR, working with its partners in Africa and elsewhere, has made to agricultural development in Africa. The paper was well received, but the review was a preliminary one, not complete, and in many cases relied on anecdotal information for its assessment. This initiative will build on this initial assessment to develop a more systematic and comprehensive assessment of the impacts of the CGIAR and its partners in achieving the goals of reducing poverty, hunger and malnutrition in Africa. There may also be an opportunity to become involved in a new initiative with good prospects for funding to carry out case studies for assessment of impacts of four centres in about 8 specific locations/projects in Africa. Ultimately, a revised and expanded study would be developed, blending the field-level impact evidence with assessment of more macro effects.

POSSR impacts consortium

An international consortium of researchers and other professionals interested in measuring and enhancing the impacts of Policy-Oriented Social Science Research was agreed upon at a workshop, hosted by the Government of the Netherlands and organized by IFPRI.

The SPIA chair and designated iSC Secretariat representative attended the meeting. SPIA members should be actively involved in the early development of this consortium and stay actively involved as it develops.

IA/Evaluation of the Systemwide Programme on Alternatives to Slash and Burn (ASB)

The ASB is one of the System's most advanced systemwide programmes. It offers good potential for evaluation and assessment of its impacts in terms of CGIAR goals. Although initially evaluated in the context of the Ecoregional SWP review along with 7 other ecoregional SWPs, this study will be more in depth and specifically evaluate, in addition to impacts, standard relevance and quality of science aspects. The study would be jointly organized with the new science monitoring and evaluation group within the SC. It currently is targeted to commence in early 2003 with full agreement of those involved with the ASB programme.

Estimating CGIAR System contributions to / impact in Latin America and South Asia

These would be parallel studies to one described above for Africa.

Assessing impacts of the System's NRM activities

This would include consideration across centres of work related to integrated natural resources management (INRM) research and component research related to water, agroforestry, forestry, fisheries and livestock research, focusing initially on methods and processes. The iSC already is moving ahead with a series of mini case studies illustrating the approaches to and results from INRM research in the System.