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Charting the CGIAR's Future – A New Vision for 2010

**Report of the TAC Standing Panel on Impact Assessment
(SPIA)**

Attached is the Report of the TAC Standing Panel on Impact Assessment (SPIA) formerly called the Impact Assessment and Evaluation Group (IAEG) until its integration with TAC on 1 January 2000. The report will be introduced by Hans Gregersen, Chair SPIA, and will serve as background material for the discussion on Agenda Item 5 "Impact of the CGIAR".

Report to MTM2000, Dresden

1. Composition and Organization of SPIA

At ICW99 the CGIAR agreed with the proposal prepared by the Cosponsors for the integration of the IAEG and TAC (see Box 1 for details). The new name for the IAEG is the Standing Panel on Impact Assessment (SPIA).

Box 1: Implementation of TAC/IAEG Integration
**(From the Summary Record Of Cosponsors Meeting,
International Centers Week 1999, Washington, D.C.)**

The Cosponsors endorsed the implementation arrangement for the TAC/IAEG integration. The key features of the arrangement are:

- Functions of the IAEG would be integrated into a new standing panel on impact assessment which would be directly linked to TAC's sub-committee on priorities and strategies (SCOPAS);
- Membership in the panel would consist of a TAC member as chair and two external experts in impact assessment (with a third slot remaining vacant for the time being);
- Linkages with EPMRs would be maintained through interaction between the panel and TAC's sub-committee on external reviews (SCOER);
- Independence of outputs and reporting would be ensured;
- Recognition of the panel's expert role in choosing topics and planning assessments; and
- TAC secretariat will have a special wing to cover the full range of activities of the panel and the SCOPAS.

Members of SPIA continue to be Drs. Cristina David (Philippines) and Frans Leeuw (Netherlands). The Chair is Dr. Hans Gregersen (US). At the recommendation of the SPIA Chair, the position of the third member remains vacant for the time being. Dr. Guido Gryseels has served as Executive Secretary of the IAEG up until his appointment as Deputy Executive Secretary of TAC. He has Secretariat responsibility for SPIA as well as SCOPAS.

2. Original and Evolving Mandate of the IAEG

The IAEG was established to:

- provide 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.

SPIA members believe that these functions are still as relevant as they were when the IAEG was established. However, it is becoming increasingly evident - as most recently emphasised by the System Review Report - that there is a third important function for ex post evaluation, namely,

- to provide feedback to priority setting, and create synergies by developing links to ex ante assessment and the overall planning and evaluation functions of TAC and the CGIAR Secretariat.

It is for that reason that the TAC chair recommended that SPIA be closely linked to TAC's Standing Committee on Priorities and Strategies (SCOPAS). The chairs of SCOPAS and SPIA both agreed, as did the Cosponsors. The challenge now is to develop the most effective and efficient operating mode possible, while maintaining the CGIAR Members' desired level of credibility and objectivity in impact assessment activities. The mode of operation and mandate for SPIA within TAC will be reviewed and discussed at TAC79 at IITA, Ibadan.

The need for objectivity, credibility, and transparency led to the original idea of assigning evaluation to a group of experts independent of the centres, the CGIAR Secretariat and TAC. The centres carry out the activities that result in impacts, the CGIAR Secretariat is directly involved in the allocation and management of resources of the System, and TAC is responsible for priority setting and overall resource allocation, policy advice, centre programme reviews and recommendations, and other planning activities. The original concern for credibility through independence is still a strong consideration. However, since the IAEG was originally established, it has become evident that there is need for closer association between the different assessment and evaluation activities in the System. In particular, it was agreed that there is need for much closer linkages with TAC, both in terms of responsibilities for EPMRs and in TAC's work on priorities and strategies.

3. On-going SPIA Activities:

The SPIA is involved in a number of complementary impact assessments related to the activities of the System in the context of its fundamental goals of poverty eradication, food security and environmental protection and enhancement. Substantial progress has been made in the studies addressing these contributions. The SPIA has seven ongoing activities (see figure 1).

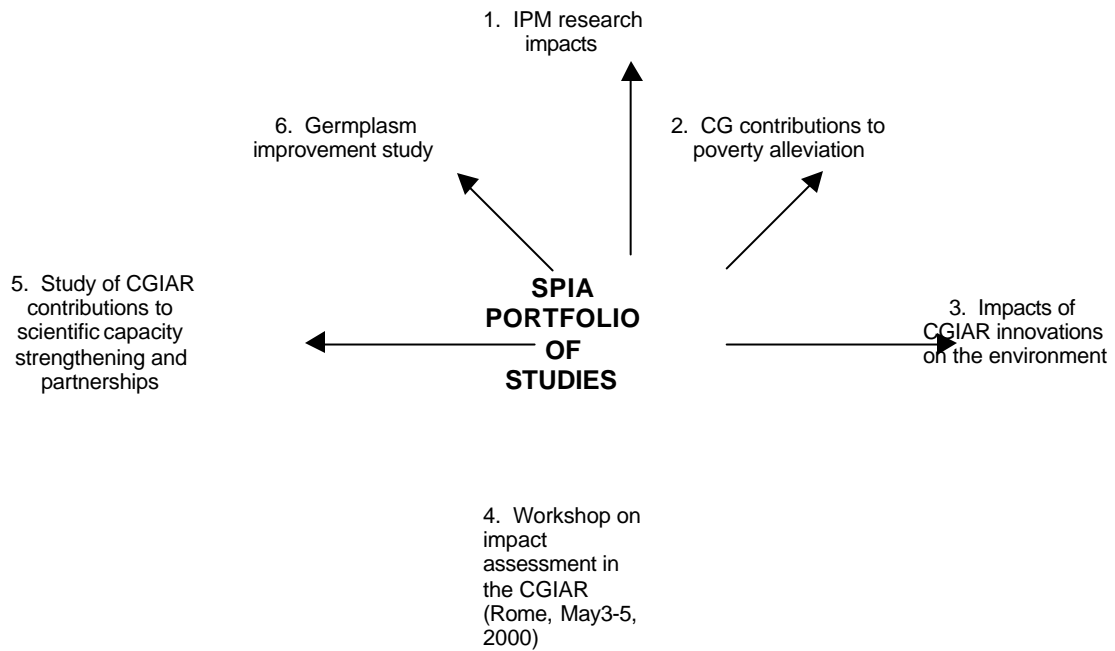


Fig. 1: SPIA Ongoing Assessments and Studies

The SPIA (then IAEG) reported in depth on a number of these activities at ICW99. Box 2 provides a summary of the results as reported in the ICW99 *Preliminary End of Meeting Report*. More detailed written reports were distributed at ICW99 and are available from the Secretariat.

**BOX 2: Excerpts from the Preliminary End of Meeting Report for ICW99.
IAEG Studies on the Impact of CGIAR Research on Poverty Reduction, Germplasm
Improvement, Environment, and Integrated Pest Management**

The Group received a report on recent IAEG activities from Professor Hans Gregersen, the current Chairman. The IAEG was established to provide timely, objective, and credible information on the impacts of CGIAR outputs, and to support centers in their *ex post* impact assessment activities. The Group endorsed the IAEG's preliminary reports on the CGIAR's impact on poverty eradication, food security and environmental protection, and urged the IAEG to move quickly into the next phases of these studies.

1. Crop Germplasm.

Under the direction of Professor Robert Evenson of Yale University, the IAEG is undertaking a study of crop germplasm impacts covering ten crops for which the international and national research systems have been engaged. The studies cover crops that constitute 80 percent of the area planted in developing countries. Professor Evenson presented the preliminary findings on investments in crop genetic improvement, varietal production, IARC content and indirect IARC impacts on varietal production, measuring production impacts of improved varieties, and economic effects.

Findings: Investment in Crop Genetic Improvement (CGI)

a) For the more developed country and crop programs, virtually all were strengthened in response to the establishment and strengthening of the international research programs.

b) For national programs with little capacity in the 1960s, the international programs effectively supplied much of the genetic material on which these programs were subsequently based.

Findings: Varietal Production

a) The continued high level of NARS and IARC production of improved varieties appears to be the result of improved access to genetic resources in NARS and the cumulation of traits and landrace content in more recently released varieties.

Findings: IARC Content and Indirect IARC Impacts on Varietal Production

a) The direct contribution of IARC programs is impressive. In the 1980s and 1990s, they were producing proportions of varieties that were well above their scientist and investment proportions. In a number of crops, IARC programs were continuing to contribute more than half of all improved released varieties into the 1990s.

Findings: Measuring Production Impacts of Improved Varieties

The proportion of area planted to improved varieties has grown steadily in all crops and in the 1990s, improved varieties are the dominant crops. Farmers have placed value on improved varieties because they have adopted them. Had the IARCs not been established (even while NARS were built to within 10 percent of their late-1990s levels), varietal production would have been 35 to 50 percent lower.

Findings: Economic Effects

Investments in IARC germplasm improvement have produced low food prices and massive gains to consumers, who are the largest beneficiaries of IARC programs. Poor consumers have benefited most of all. For the world's smallest farm producers, the total producer and consumer gains are large.

BOX 2 continued: Excerpts from ICW99 End of Meeting Report

2. Poverty Reduction.

Peter Hazell of IFPRI reported the preliminary results of IAEG's study of poverty reduction. An extensive review and synthesis of the literature on the links between agricultural research and poverty has confirmed that agricultural research can have very favorable impacts on the poor, but that this is not an inevitable outcome and depends on sufficient enabling conditions. These conditions include an equitable distribution of land, secure ownership and tenancy rights, efficient inputs and output markets that serve all types of farmers, research and extension systems that are not biased towards large farms, and scale neutral technologies.

3. Impacts on the Environment.

Details of the IAEG's study on the impact of CGIAR activities on the environment were provided by Dr. Mike Nelson of New Zealand. The preliminary analysis revealed that land saved from deforestation as a result of productivity research in seven key mandated food crops was in the range of 170 to 420 million hectares, with another 50 million hectares in reduced requirements for permanent pasture attributable to forage/livestock research.

4. Impacts of CGIAR Integrated Pest Management Activities.

Professor Herman Waibel of Hannover University provided highlights of IAEG's study on the impact of research on integrated pest management. He noted that research on IPM has been underway in all centers for a long period, and that the technological paradigm of IPM is dominant and there is also increasing appreciation given to treating IPM in a social science context. The future of IPM is heavily dependent on developments in biotechnology that will determine the nature of future partnerships. Finally, the study clearly shows that CGIAR's investments have been profitable, and that even in the long term, the rate of return to investment in IPM research is in the magnitude of 15 to 40 percent.

4. Current Status and Future Plans for SPIA Assessments

Below are briefly outlined the current status and future plans for each of the following activities:

4.1 Assessment of Germplasm Improvement Impacts.

The IAEG commissioned a study of the impact of CGIAR germplasm improvement, conducted by Professor Robert Evenson of Yale University in collaboration with the centres. Its provisional results were reported and discussed at ICW99 (Document No. ICW/99/08/b). Further results were presented at the February 2000 meeting of the American Association for the Advancement of Science (Washington, DC). Drawing upon a wealth of data the study's preliminary conclusions are, *inter alia*, that the direct contribution of IARC programmes to varietal production has been impressive, with annual varietal improvement total factor productivity gains ranging from 1 to 2 percent per year. Without the IARC investment in varietal improvement, it is estimated that for the period 1990-95 wheat production would have been reduced by roughly 50 percent and rice production 35 percent. In economic terms, counterfactual analyses suggest that wheat prices would have been 26 to 34 percent higher without the IARC investment, and food imports into developing countries would have been considerably higher. The gains to consumers from lower food prices disproportionately benefited the poor. Finally, the area planted to crops would have been significantly higher, creating more pressure on biodiversity habitats and on fragile land problems. A further report of the study is being presented to the CGIAR at MTM2000. The final report will be available in time for ICW2000.

4.2 Assessment of the Impacts on Poverty Alleviation.

At present, the CGIAR System does impact assessments that are focused almost entirely on showing the extent of adoption of new technologies and their impacts on farm productivity. What is now needed is an in-house capacity within CGIAR centres and NARS (trained staff, methods, cultural acceptance, etc.) to undertake the more difficult task of assessing poverty impacts on a continuing basis. These assessments must (a) lead to better targeting of research priorities to the changing needs of the poor, and (b) demonstrate poverty impact and hence the relevance of CGIAR investments.

The primary objective of this impact assessment activity, which will be implemented by IFPRI on behalf of SPIA, is to initiate capacity for such poverty assessments. It is a first step in a continuing process of improvement and adaptation of poverty impact assessment and priority setting within the CGIAR System and its key NARS partners. The project will also provide assessment of some of the more recent post-green revolution work of the CGIAR centres. The specific objectives of the project are:

1. To assess the impact on the poor of a representative set of recent and ongoing CGIAR research activities, including commodity improvement work, NRM, and policy research.
2. To identify and test best practice methods for quantitatively assessing the impact of CGIAR research on the poor.
3. To develop and test appropriate methods of social and institutional analysis to examine the context in which new technologies are released and adopted to better understand how agricultural research impacts on broader definitions of poverty and

social outcomes (including empowerment, sustainable rural livelihoods, etc), and how research might be better targeted or integrated within the broader context of social development for sustainable rural livelihoods.

4. To strengthen the capacity of CGIAR centres and NARS to undertake poverty impact assessments and to internalize poverty impact assessment culture for the future. Such capacity must be responsive to the changing needs of the poor over time.

The study is organized in two phases. Phase I was undertaken between November 1998 and August 1999. The main published output was a review and synthesis of the literature on the links between agricultural research and poverty undertaken by John Kerr and Shashi Kolavalli (consultants). It provides an update of the Lipton and Longhurst (1989) review undertaken for the 1985 CGIAR Impact study. The review by Kerr and Kolavalli has been published as an IFPRI/IAEG working paper. The review confirms that agricultural research can have very favorable impacts on the poor, but that this is not an inevitable outcome and depends on the presence of sufficient enabling conditions. For green revolution type technologies, these conditions include an equitable distribution of land, secure ownership and tenancy rights, efficient input and output markets that serve all types of farmers, research and extension systems that are not biased towards large farms, and scale neutral technologies. The review also highlights the shortcomings of many past impact assessment studies, particularly their failure to establish adequate counterfactual situations for comparative purposes, or to adequately control for many confounding factors that impacted on the outcomes.

Detailed planning for Phase II of the study is now underway. This phase will consist of a series of case studies documenting the impact on poverty alleviation of a representative sample of CGIAR research activities carried out in a broad range of countries, thereby contributing to a better understanding of the CGIAR's impact on the poor at regional and global levels. The studies will address the different channels through which agricultural research can impact the poor, including intra-household effects, on-farm production effects, labor market effects, and indirect growth, nonfarm and food price effects. The studies will also contribute to improved understanding of the conditioning economic and social factors that determine whether and how agricultural research benefits the poor, and will provide guidelines on appropriate policies that may be needed to complement technological change to enhance favorable impacts on the poor. It is anticipated that the research methodologies developed and tested in the course of Phase II will contribute to identifying best practice impact assessment methods for future use by the CGIAR and its NARS partners. The case studies will be conducted in two waves. Subject to funding, the first will begin in June 2000 and be completed in December 2002. A synthesis paper based on the first wave of case studies will be completed by August 2002 and presented at ICW2002. The second wave will begin by the end of 2000 and be completed by June 2003, leading to a second synthesis paper by August 2003. This paper will be presented at ICW 2003. A final project report will be completed by December 2003.

4.3 Assessment of the Impacts of CGIAR Integrated Pest Management (IPM) Activities

The IAEG commissioned a study on the impact of research on integrated pest management (IPM) conducted by the CGIAR. Professor Hermann Waibel of Hannover University, a recognized international expert in the field of evaluation and impact assessment of IPM, conducted the study. A draft of his report (Document No.

ICW/99/08/c) was presented and discussed at ICW99. The report clearly shows that the CGIAR's investments have been profitable, and that even in the long term, the rate of return to investment in IPM research is on the magnitude of 15 to 40 percent. Dr. Waibel stresses the need to assess the impact of IPM in the broader context of the overall crop management system. The report is currently being finalized for publication and more widespread circulation.

4.4 Assessment of Impacts of the CGIAR on the Environment.

Phase I of this assessment was completed for ICW99. Phase II has commenced. The same Panel that undertook Phase I is carrying out Phase II. As a result of the initial phase it became clear that quantitatively assessing the environmental impact (EI) of CGIAR would be complex and, to meet standards of analytical rigor, would probably be time-consuming and costly. Furthermore, results from ex post evaluation are subject to significant time lags. Accordingly it was decided to move forward on three fronts, to enable specification of options for evolving system-wide arrangements aimed at providing global and regional estimates of EI:

- empirical questions arising in refining global estimates of land savings (and associated environmental services) attributable to research on the System's key commodities, as the major positive environmental impact;
- empirical evidence of negative (and non-land saving positive) EIs associated with adoption of research results from germplasm and associated technology packages for the key commodities;
- conceptual issues in establishing an operational System-wide procedure to evaluate the extent to which the outcomes from application of CGIAR NRM research in rainfed agriculture, irrigation, forestry and fisheries are physically, economically or socially sustainable. This work will draw on a number of past activities of TAC and the Centers and will be linked closely to the work of the ad hoc CGIAR group on INRM, which is having a major meeting on NRM in August in Penang.

In Phase I, scenarios were developed for land savings which may be attributable to the CGIAR research on seven key commodities basically built around germplasm modification and management packages (including IPM) aimed at maximizing financial returns from the new varieties. In the second phase, the data base on six of these commodities (provided by the SPIA/TAC study on the productivity impacts from crop germplasm improvement) will be used in association with more disaggregated GIS data to develop a refined estimate of land saving scenarios including the geographic location of the likely savings. An effort will also be made to establish whether additional savings may have been attributed to research on post-harvest losses.

Three papers will be contracted to explore conceptual issues and empirical evidence of environmental services (biodiversity, carbon storage and avoided downstream damage) which may have been provided by land saving in selected representative situations. To the extent that empirical evidence is found, estimates will be made of the physical or economic values of such services associated with the range of land savings established.

The literature on positive and negative environmental impacts associated with irrigated and rainfed agricultural development is being reviewed for evidence of those impacts which are applicable to the seven commodities addressed in Phase I. Particular

attention is being given to issues of : monoculture; agricultural chemicals in soil, water and air affecting human health; damage to soil structure; the spread of plant disease; and reduced use of agro-chemicals due to IPM.

In order to explore in more depth the issues in evaluating sustainability performance of NRM, a case study was contracted to look at empirical evidence and evaluate options for obtaining such evidence in the case of hillside situations. The conclusions from this study highlight the complexities of undertaking such evaluations and confirm the Panel's original premise that the logical way to proceed is through case studies.

Results of Phase I and ideas for Phase II were discussed during the May 3-5 Rome based SPIA/TAC workshop on "The Future of Assessment in CGIAR : Needs, Constraints and Options," (see item below). At that workshop the Panel experts received feedback from the centres on the Phase I report and progress in Phase II, particularly with respect to those aspects of EI which they see as relevant to the selection and design of research projects (especially in the area of monitoring and evaluation – M&E). Options for centre collaboration beyond the workshop were explored with the center impact focal points, since the next phase of the work will require some direct center input. It became clear at the Workshop that centers feel that the SPIA panel should continue to focus on the environmental impacts of CGIAR germplasm improvement work primarily, and that the Panel should for the time being, and particularly until after the forthcoming CGIAR INRM meeting in Penang, not become involved in issues related to the impacts of NRM research.

A progress report on the results of this Phase II activity will be presented at ICW00.

4.5 Workshop on The Future of Impact Assessment in the CGIAR: Needs, Constraints and Options.

TAC/SPIA sponsored and organized this workshop which took place May 3-5 in Rome at FAO, Rome. The overall goal of the workshop was to start the process of formulating a set of realistic and operational guidelines for future impact assessments in the CGIAR based on experiences gained from previous CGIAR impact studies and expertise available in the broader evaluation community. Specifically, the workshop:

- identified the CGIAR's impact assessment needs and objectives;
- developed a common understanding of the state-of-the-art of theory, methodology, practice, utilisation, and diffusion of assessments in the CGIAR;
- identified what needs to be done to strengthen existing impact assessment capacity within the CGIAR;
- improved participant understanding of opportunities and constraints involved in linking *ex post* evaluations to forward looking strategic planning and priority setting;
- provided opportunity to discuss good practices in the field of impact assessment beyond traditional economic assessment of impacts of research on productivity enhancing technologies, e.g., impacts in the areas of environment and natural resources management, training, and other capacity strengthening activities; and
- initiated the process of developing principles and guidelines for future impact assessment work in the CGIAR, particularly in the context of linking IA to the use of logframes in CGIAR planning.

The workshop was structured into three sessions. The first discussed stakeholder perspectives on impact assessment needs and progress in the CGIAR based on overviews presented by the major stakeholders. The second focused on technical and analytical issues based on presentations by outside experts and discussion by a panel and from the floor. Specific issues and analytical opportunities were discussed related to on-going impact assessment activities in the areas of capacity strengthening and environment. The third session attempted to integrate stakeholder perspectives with technical possibilities and options, and to reach conclusions and make recommendations on where future impact assessment and evaluation activities should be going in the CGIAR.

The workshop was attended by more than 60 participants and included representatives from all the CGIAR centres; the Chair of the Oversight and Finance Committees; SPIA and TAC members, members of the CGIAR who have been supporting SPIA activities, representatives of the Co-sponsoring agencies; outside evaluation experts, and staff of the TAC, CGIAR and NARS Secretariats. The Workshop was facilitated by professional moderators. Workshop documentation consisting of keynotes, overview papers, and centre presentations is available on the TAC website and will be published in a proceedings.

4.6 State of the Art Paper on Impact Assessment.

The IAEG presented a paper on the “State of the Art” in agricultural research evaluation at an ASARECA/ECART/CTA workshop on impact assessment of agricultural research in eastern and central Africa, which was held in Entebbe, Uganda, from 15-19 November 1999. The IAEG also helped to organise this workshop.

4.7 Study of CGIAR Contributions To Scientific Capacity Strengthening And Partnerships.

There is widespread opinion among NARS representatives and CGIAR members that the CGIAR activities in training and capacity strengthening have provided significant contributions over the years to the growth and sustainability of national agricultural research systems. Thus, SPIA is commencing an assessment of the impacts of the CGIAR’s impact on scientific capacity strengthening of NARS. This assessment will be conducted in close collaboration with the NARS Secretariat and the centers.

As an initial step, the SPIA developed and updated data on the accomplishments of the CGIAR in training activities since the 1984 TAC training study and subsequently attempt to measure the impact of those activities. The desk study provides an overview of current centre activities in the area of training and human resource development. It provides aggregate information on centre achievements with respect to number of trainees, type of courses, and so on. SPIA has now completed this “Synthesis Report on Training Activities at CGIAR Centers” (copies available from the TAC Secretariat on request).

A review of methodology was undertaken by a SPIA consultant, Dr. S. Husain. Further, the theme, needs and potentials were discussed at the May 3-5 Rome workshop (see above). Based on these three items – the review of on-going training activities, the review of methodology, and the discussion at the workshop – SPIA decided to move ahead with the assessment in stages. The focus of future SPIA activity in this area will be on: (1) documenting and evaluating, to the extent possible, the changes in institutional capacities, motivation and research environments

(achievements) that can be associated with CGIAR capacity strengthening activities; and then (2) assessing alternative scenarios of how those changes might be associated with impacts in terms of CGIAR goals.

A panel will be formed to work on the full assessment. In the meantime, SPIA will move ahead with phase I, starting with an expansion and completion of the inventory of center programs and accomplishments and training budgets. Also, a questionnaire will be designed and pilot tested for use with trainees and with those administering the agencies to which the trainees return after training. The study will draw on centre expertise, particularly from those managing and carrying out the training activities of the centres. In fact, several training focused groups with the System already have provided substantial input to the assessment. The study will be conducted in close collaboration with the NARS Secretariat. It is planned that a substantial progress report will be presented at ICW2000.

5. The Evolution of SPIA within the TAC

TAC has recognized in the past that there are different stages of evaluation and assessment along a time continuum. Looking towards the past, we have *ex post evaluation of performance, achievements and impacts*. The resulting information is used in accounting for past use of resources and in planning the future. During the present stage along the continuum, there is *monitoring, evaluation and assessment* aimed at providing information to guide present activities and revision of ongoing plans. Looking towards the future, there is *ex ante assessment* of likely future environments and of expected impacts from planned and on-going research. The resulting information is used in planning future activity.

While we have a time continuum from past research outputs, through present research activities and on to expected future activities and output, the evaluation and assessment activities and their outputs fit into a broader dynamic evaluation cycle, in which the results of M&E continuously feed back into assessment and priority setting. Thus, all three points along the time continuum involve evaluation or assessment to provide information for *planning future priorities, strategies and activities*. Even in the case of ex post impact evaluations for accountability purposes, the resulting outputs mainly are used for future planning and resource allocation.

The question here is: where should SPIA and its activities fit within this overall evaluation and assessment cycle? What should be its structure and functions within the overall TAC framework? While it was fully expected that this question would be debated at TAC78, priority had to be given to TAC's input for the Vision and Strategy exercise. Thus, the TAC-SPIA integration issue has been postponed to TAC79 in September. TAC and SPIA will report on the results of those discussions at ICW00.