

World Bank consultation for the European region on the proposed International Assessment of the Role of Agricultural Science and Technology in Reducing Hunger, Improving Rural Livelihoods and Stimulating Environmentally and Socially Sustainable Economic Growth

**31 March – 1 April
Paris, France**

Summary of the discussion

This report documents the outcome of the discussion of the breakout groups at the consultative meeting held for the European region in Paris, 31 March-1 April 2003. This meeting was organized by the World Bank and hosted by the French Ministry of Foreign Affairs, in the framework of the World Bank consultative process on a proposed international assessment of agricultural science and technology.

In Paris, there was a great deal of spirited dialogue. This dialogue resulted in a sharpening of focus, and a clear delineation of how the assessment could be useful. Poverty reduction emerged as an organizing framework. In general, there was strong support for intergovernmental ownership and governance.

In the following notes, agriculture is understood in a wide sense, including forestry and fisheries, as well as crops and livestock, food processing and distribution systems, as well as other aspects of sustainable rural livelihoods. Agricultural science is understood to include the economic, political and social sciences. Technology is similarly understood to include not only "hardware," but also software components, such as governance and management systems.

After opening presentations, we broke into three parallel groups to discuss the scope, the key questions, and the potential value of an assessment, as well as possible governance and organizational structures. The following notes are a synthesis of the three breakout group discussions.

Why the assessment could be useful now

The groups gave the following reasons why the assessment could be useful:

- The assessment would provide a good basis for policy making and policy decisions on issues related to how S&T could reduce hunger and improve rural livelihoods in an environmentally and socially sustainable manner
- The assessment would put biotechnology in a broader context
- The assessment would delineate the effects of science and technology on poverty reduction and nutritional security
- The assessment would help steer global agricultural research in an appropriate direction to achieve the stated goals
- The assessment would help maximize cooperation and coordination in agricultural research
- The assessment would provide national systems with an international perspective

Why is an assessment of value now?

- Synergies with other similar processes (e.g., the IAC and MDG studies)

- NEPAD and the World Food Summit-five years later- both called for a new focus on agriculture and The World Summit on Sustainable Development in Johannesburg called for the focus to be translated into new initiatives.
- Some participants felt that one of the added values of an assessment would be the potential for increased funding for agricultural S&T. In the end, the group agreed that specifying increased funding for agricultural S&T would seem like sectoral pleading and so should not be included as a reason for the assessment. However, participants agreed that a crucial question for the assessment to ask was whether the funding for ag S&T is currently used efficiently and effectively in terms of hunger and poverty reduction or if funds should be reallocated.

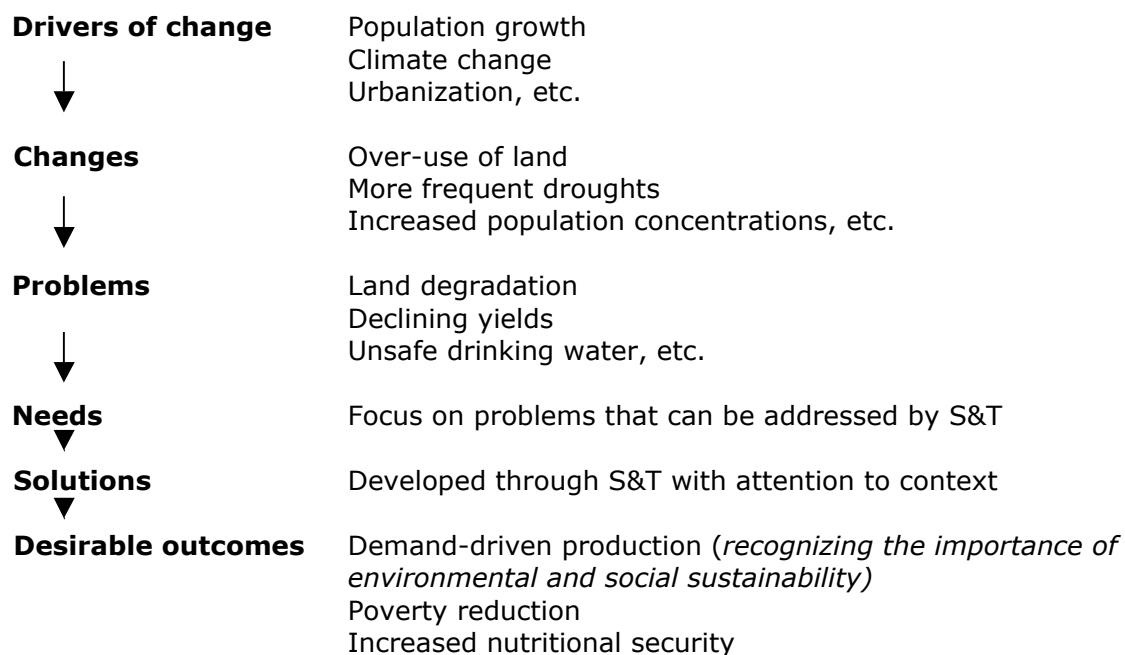
All participants agreed that the assessment must add value to the fight against hunger, be rigorous and transparent. In the closing plenary the Chair asked whether or not there was agreement to go ahead with assessment. The generally agreed answer was yes, if the assessment was useful as defined in the above bullets.

Preliminary discussion

The comments below give a sense of the beginning of the breakout group discussions:

- *Are we sufficiently confident that we know when and where S&T can help reduce poverty and hunger?* -- It was felt by most that a retrospective analysis delineating instances of when agricultural S&T had resulted in reduced hunger and poverty and when S&T had failed to diminish the number of poor and hungry would be central to setting the stage for an assessment.
- *Should the **consultation** be devoted to European issues or agricultural issues in developing countries?* -- After some discussion on global and regional issues and the possibility of using experience and knowledge from one region in the world to improve agricultural performance in another region, the group suggested several global and developing country-specific issues and several European-specific issues to be covered by the assessment (see page 5). However, it was generally agreed that the **assessment** should apply wherever there is poverty, hunger, or degradation of natural resources – so it should be global, but with an emphasis on developing countries.
- *How could current and future issues potentially be integrated in the assessment?* -- There was consensus that the process of analysis should analyze S&T needs for the future for a range of future demographic and political scenarios. Current trends would feed into this analysis.
- *What will the role be of social sciences in the assessment?* -- Participants agreed that their inclusion would be critical to the success of an assessment.
- *What are the contextual issues within the assessment?* -- It was agreed by most that trade regimes are not within the perimeters of the assessment, but that their importance in the successful implementation of new technologies needs to be acknowledged. Participants agreed that more discussion would be needed on how this acknowledgement should be built into the process, particularly since there are multiple examples of available agricultural technologies that are not exploited to their potential due to political or trade barriers.

One group suggested the following model for analysis:



According to this model, the identification of changes and their potential impacts would help to define future problems and set priorities to address these problems. The needs for S&T within these broad agricultural-related problems would be identified.

Participants agreed that the development of S&T solutions would have to take into account the contextual aspects. That is, considering all other conditions, what is the best way to use S&T, how can it be delivered and implemented? In discussion of the context, which would include trade and other political issues, the objective would be to find, given the conditions, the most efficacious way, to develop, transfer and apply technological solutions.

Scope and basic approach

Participants in one group stated that the title of the assessment should include a reference to poverty, the cause of hunger. The group felt that a clear poverty reduction agenda provided an essential connection to the "ground troops" – the beneficiaries. They proposed a new title, which was accepted in plenary:

How can hunger and poverty be reduced, rural livelihoods improved and environmentally and socially sustainable economic growth be stimulated through the generation, access and use of agricultural S&T?

When drafts of this notes were circulated, one participant commented that the title might be improved by changing to "generation, effective distribution, and use of appropriate agricultural research outputs," where outputs would include technologies, products, management approaches, procedures and policies. This change can be discussed at future meetings.

Some general comments included:

- The assessment should concentrate on all aspects of knowledge, science and technology related to agriculture, forestry and aquaculture, not just new and

high-tech issues. In this regard, there should be no specific focus on gene or any other technologies, but proper awareness of the ongoing revolution in the Life Sciences.

- Start with deciding factors in successes and failures of agricultural S&T over the past decades.
- Examine technologies under development.
- Social sciences must play central role in the assessment
- Make hunger eradication the evaluative priority (with consideration for economic development in rural areas), not its perceived means and prerequisites (such as productivity).
- Make S&T (its paradigms, presumptions, perceptions and driving forces) subject to scientific and beneficiary assessment.
- Approach should be demand-driven – for example, “How can I improve the reliability of production in my circumstances?” What counts is the perspective: Is it derived from the demands = problems or from the supply = technologies?
- Take into account that conventional market mechanisms to deliver demand-driven approaches usually do not work in this area (hungry, poor people have no economic demanding power), but should be utilized wherever possible.
- Recognize there is no "objective truth" concerning best agricultural practises and that some of the users and some of those affected by S&T are not able to articulate their needs.

Key issues

The groups agreed that the questions for assessment should address the fact that many technologies available today are not in use, as well as identify the areas in which *new* technology would be necessary. In terms of *already available* technology, the assessment could address the impediments to applying S&T to its full potential. The participants also agreed that the wording of questions should be neutral.

New key S&T questions (in italics below) were added to those offered by participants in previous consultations:

General

- What kinds of research need to be performed, where and by whom, to develop science and technologies that improve nutritional security and raise incomes?
- *How do the scientific approaches and technical solutions of today reply to the needs identified in projections of future needs?*
- *What is the potential of S&T to address problems derived from migration to urban areas?*

Agronomy

- What is the potential of science and technology to reduce post-harvest losses and minimize waste?
- What is the potential of S&T to increase productivity through improved crop traits in drought-prone areas and areas subject to above optimal air temperatures?
- What can scientists and technologists learn from indigenous approaches to overcoming biophysical constraints to agricultural production?

- What is the potential of ag S&T to improve biofuel and bioenergy production? -- The issue of diversification into non-traditional production emerged in several questions.
- *Crops differ substantially in the characteristic nutrient content of edible portions and in their ability to extract nutrients from soil. What is the potential for combining these two traits into crops with high yield capacity?*
- *What is the potential of S&T to improve nutrient cycling?*
- *As we look to the future, what are the amounts and kinds of soil amendments we need? Is a continuation of past practices sufficient? Will more attention to the root-soil interface be necessary or beneficial?*
- *What is the potential of S&T to combat new or emerging agricultural pests and diseases?*

Environment/Natural resources

- What is the potential of S&T for improving energy and water efficiency in agriculture?
- What is the potential of S&T to reduce external and energy-intensive inputs?
- *What is the potential of S&T to address soil fertility?*
- *How can stakeholders better manage common resources, such as forest and rangelands?*
- *What is the potential of S&T to address land degradation?*
- *What is the potential of S&T to address the drivers of climate change?*

Information technologies

- How can information and communications and GIS technologies be used to assist producers?

Markets

- *What is the potential of S&T to improve the effectiveness of global, national and local market systems in stimulating market-oriented production, promoting local value-added processing activities, increasing rural incomes and improving local access to food?*
- *What are the implications of market access on natural resources and endowments (forestry and fisheries)?*

In general, core issues for Europe were regarded as those S&T issues related to diversification, production, multifunctionality, and the environment. Trade and the market were viewed as contextual issues. It was noted that there is no predisposition toward bioscience in Europe, that is, new technologies are sometimes rejected.

Sustainability can be defined as a way of interacting with the environment. These interactions have social and economic causes and consequences and hence a discussion of S&T needs to include economic and social analysis. Issues of key importance to Europe included:

Environment/Natural resources

- What is the potential of S&T to address multiple functionality, landscape- and eco-stewardship?
- What is the potential of S&T to improve water and energy efficiency? – All participants agreed that addressing how S&T could improve water management was key.

- What is the potential of S&T to reduce the negative environmental impacts of agriculture?
- Can S&T improve the potential of integrated/organic farming?
- How can S&T aid in the better management of common goods, for example, the North Sea fish stocks?

Markets

- What is the potential of S&T to contribute to the realignment of agricultural markets in Eastern Europe? Some of the Eastern European participants stressed that since Europe varies greatly in terms of supply and demand an overall regional analysis would be of little use.

Food safety

- What is the potential of S&T to improve food safety?

Enabling context

Participants generally agreed that the wider scope connoted by the terms a “doubly green revolution” (growth in agricultural production + improved livelihoods) was appropriate and that the conceptual shift from “green” to “doubly green” implied a broader context for S&T and that institutional changes would be key in this conceptual shift. The bullets below were regarded as part of the broader enabling context of S&T:

- Access to land, capital and knowledge
- Dissemination and sharing of knowledge and technologies (IPRs)
- Improvement of user training and qualification
- Affordable and accessible technologies
- Gender equity
- Improve/enable risk/benefit assessments at national, institutional and private level

Participants agreed that although the Assessment should **not** address the contentious issues of the Doha round, there would still be a need to at least descriptively take into account the consequences of different agricultural policies, including subsidies and terms of trade, on agricultural S&T.

Additions to the key enabling questions provided by participants in consultation in Dublin, Cairo and via the web are listed below in italics. As the reader will note, there was a stronger focus on the development, management and exploitation of intellectual property rights than had been noted in previous consultations.

General

- *What are effective mechanisms for identifying knowledge gaps and choosing entry points for developing appropriate S&T interventions along a continuum encompassing available natural resources, farm production, food processing and consumer access to food?*
- *How can we avoid the politicisation of scientific research? Most people understand the implication of scientific research (the example was given of tobacco’s role in health), but then politicise it for their own purposes.*

- *What are the factors affecting management of land and water resources by producers? How do governance systems constrain forestry and fisheries management?*

Funding and research priorities

- *Has the commitment to agricultural S&T declined nationally and internationally? If so, what are the causes and how can it be reversed?*
- *What are the research priorities in agricultural S&T; what level of investments is needed, what are appropriate roles for the public and private sector, and are public-private partnerships an effective way of doing research?*
- *What is the needed balance of investments between technologies to improve food production and food traits and methods to improve access to food by poor people through policy reform and institutional strengthening?*
- *What are potential benefits for donor and recipients from public investment in ag S&T?*
- *How do (private) products vs. (public) methods shape the development of S&T and how should they be balanced?*
- *How are S&T research priorities affected by subsidies?*
- *What types of institutions are needed to fulfil the research needs and how can they enhance funding for research and product development? How can their goals and objectives be sustained?*
- *How has a) public b) private investment in ag S&T developed over the recent past with what specific priorities?*

Information diffusion

- *What are the necessary enabling conditions in relation to policies, institutions, and markets, to ensure that farmers have access to the results of research and adopt proven technologies?*
- *How can we accelerate the diffusion of technologies and approaches that make more efficient use of the biophysical resources on which agriculture depends?*
- *How can we create an environment for all stakeholders to share technology success and failure stories, and what is needed to eliminate information and communication technology gaps, in terms of technical and human capacity?*
- *How can we create mechanisms for interactive knowledge networks to improve understanding and enhance exchange of ideas between the North and South? Participants expressed weariness with term "technology transfer" because it implies uni-directional transfers – it was suggested that "interactive knowledge networks" better captured how we all learn from one another.*
- *What are efficient and effective forms of north-south cooperation to improve capabilities in the South?*
- *How can S&T help improve the quality of communication? How do we transform information into knowledge?*

Risk and benefit assessment

- *Are the appropriate mechanisms in place to assess the risks and benefits of new technologies?*
- *Who defines the risks and benefits and how do institutions react to these?*
- *What is the role of northern institutions in southern risk and benefit assessment?*
- *Are institutions fully aware of the risks and benefits faced in the dynamic environments in which producers operate?*

Gender

- What is needed to improve the gender balance in the development and access to and *benefits from S&T*?

Intellectual Property Rights

- *What models ensure Intellectual Property Rights protection for end users and by end users?*
- *When do intellectual property rights enhance or inhibit investment in agricultural research and development?*
- *How can we secure the intellectual property rights of the poor?*

Governing structure

Utility

Since the assessment by definition must be influential to be of value, the organizational structure should maximize influence. Consensus emerged on an intergovernmental structure, since it would ensure buy-in from governments. Another marked advantage of an intergovernmental process was seen to be its authoritativeness. However, this structure should guarantee:

- independence for scientific work
- that all stakeholders are involved in defining the problems, and preparation and peer-review
- provide for sufficient input from NGOs/CBOs

Some participants stated that they needed more information than that provided by the organizers to truly evaluate the best governing structure for the proposed assessment, but as presented in the plenary, the intergovernmental process appeared to be the best in terms of assuring that the product—the assessment report—would be used. Participants also noted that there that those who will read and use the assessment report and those who will benefit from its recommendations may differ.

There was general agreement stakeholders would need to be involved; that the assessment process must be demand-driven and that it must provide stakeholders on the receiving end with a chance to present and define their own needs. That is, priority setting for an assessment must involve all relevant stakeholders.

A hybrid intergovernmental model was also proposed. The assessment could be seen as a 'casino' in which governments would run (direct) the table, scientists would act as the engineers in constructing and maintaining the table, and stakeholders would be the players. The World Bank could act as the 'owner' of the casino, providing the infrastructure and the secretariat for the process.

Other suggestions included:

- Government plenary to select multi-stakeholder board of directors.
- International organization, such FAO or UNEP or WHO or combination, to host plenary with World Bank as Secretariat.

- Provide for output from other processes to feed into design of this assessment.

Transparency

Participants felt that the assessment should not be solely embedded in one institution because this could potentially limit transparency. It was agreed that firewalls should be established to ensure the independence of experts when analysing these problems from an agricultural S&T perspective and prevent vested parties from driving the assessment.

There was a good deal of discussion about who would select the authors and what hats the authors would wear. Some participants thought the authors should serve as representatives of their respective institutions; others said this wouldn't work because the institutions would then need to vet the authors contributions. It was mentioned that in the IPCC model, the Board, which is comprised of a representative geographic subset of all the governments, accepts and selects nominations for authors from all sources. If someone from a French ministry, for example, is selected, that person still serves in his or her individual capacity as an expert.

Financial considerations

There was a great deal of discussion about the cost of the proposed assessment. Some thought \$10 million was reasonable in light of the tremendous sum spent on subsidies (\$365 billion by OECD countries). Others pointed to the fact that if the process were intergovernmental, most likely the cost would be borne by about 20 or so countries. If the assessment takes place over a two-year period this would mean \$250K per year contributions. This was regarded by some participants as a small price to pay if the assessment resulted in reduced hunger, improved rural livelihoods and environmentally and socially sustainable growth.