An Assessment of Agricultural Science and Technology for Development

How can we reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of agricultural knowledge, science and technology?

The Final Report of the Steering Committee for the Consultative Process on Agricultural Science and Technology

12 August 2003

Preface

Between late 2001 and mid-2002, the World Bank held a number of meetings with various stakeholders to discuss prominent issues in agricultural science and technology. This led to an announcement by the Bank at the World Summit on Sustainable Development in August 2002 that an international consultative process on a proposed international assessment of the role of agricultural science and technology in reducing hunger, improving rural livelihoods and stimulating economic growth over the coming decades would be cosponsored by the World Bank and FAO.

The goal of the consultative process was to engage a balanced and representative set of stakeholders in each region (Africa, Asia, Latin America and the Caribbean, Pacific, Europe and North America). At each regional meeting, participants discussed the potential value and scope of the proposed assessment. They also discussed potential organizational structures and governing principles and procedures for the proposed assessment.

The first meeting was held in Dublin, Ireland in November 2002 with representatives from relevant stakeholder groups from around the world. Participants at this meeting agreed that transparency and inclusiveness were essential operating principles for the regional consultations. Specialists and generalists, natural scientists and policy experts, experts in local and institutional knowledge, producers, environmentalists and health experts from all relevant stakeholder groups active in the area of agriculture (governments, private sector, producers, consumers, non-governmental organizations, international organizations, extension systems, foundations, scientific organizations and individual scientists) should be included.

A Steering Committee comprised of representatives of all relevant stakeholder groups was formed shortly after Dublin (Annex I). The five co-chairs were Rita Sharma, Principal Secretary and Rural Infrastructure Commissioner, Government of Uttar Pradesh, India; Louise Fresco, Assistant Director General for Agriculture, United Nations Food and Agriculture Organization; Claudia Martinez Zuleta, Former Deputy Minister of the Environment, Colombia; Seyfu Ketema, Executive Secretary, Association for Strengthening Agricultural Research in East and Central Africa (ASARECA); and Robert T. Watson, Chief Scientist, The World Bank.

Regional consultations were subsequently held in Cairo, Egypt (North Africa, Middle East and Central and West Asia); Paris, France (Eastern and Western Europe); Lima, Peru (South America); Washington, D.C. (USA and Canada); San Jose, Costa Rica (Central America); New Delhi, India (South Asia); Suva, Fiji (Pacific Islands); Bogor, Indonesia (Southeast Asia); and Addis Ababa, Ethiopia (Sub-Saharan Africa). In addition, presentations on the proposed assessment were presented to participants in the CGIAR Annual General Meeting (Philippines, Sept 2002); ASARECA Annual Meeting (Kenya, Jan 2003); FAO Committee on Agriculture (Italy, Apr 2003); and Forum on Agricultural Research for Africa plenary (Senegal, May 2003).

The Steering Committee met in Cork, Ireland (June 12-13) and Budapest, Hungary (July 31-August 2) to finalize recommendations to the President of the World Bank and the

Heads of FAO, UNEP, WHO, UNDP, IFAD and UNESCO based on the outcomes of those regional meetings. The recommendations are attached; they address the rationale, goal, scope, outputs, outcomes, assessment characteristics, management and governance structure, location of secretariat, the proposed budget and funding philosophy.

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Executive Summary

Today, access to sufficient, safe and nutritious food is the primary problem for nearly 800 million chronically undernourished people, the vast majority of whom live in rural areas. Yet, the demand for food is projected[1] to double within the next 25-50 years, primarily in developing countries, as the global population increases to 8-10 billion. The global community confronts the enormous task of enhancing rural livelihoods and ensuring nutritional security in a world where the population is growing in size and evolving in consumption patterns while reversing environmental degradation, redressing social and gender inequity, and ensuring human health and well-being.

Assessing the demand and the range of possibilities for meeting the demand for agricultural products and improving rural livelihoods (on- and off-farm) is a multi-sectoral endeavor, which requires attention to a wide array of economic, environmental, ethical and social considerations. Conflicting views on a number of issues underscore the need for an international assessment to provide a comprehensive, multidisciplinary analysis of issues critical to policy formulation.

Goal of the proposed Assessment

Our goal is to provide decision makers with the information they need to reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of agricultural knowledge, science and technology.

Scope of the proposed Assessment

The Assessment would take interlinked short, medium and long-term perspectives (up to 2050) and use a multi-disciplinary approach to address the full range of agricultural products (crops, livestock, fisheries, forests, fiber, and biomass) and services. It would assess the economic, environmental, health and social (including gender) implications of current and potential future technologies. It would assess what we can learn from the past by providing a critical retrospective of agricultural knowledge, science and technology and the effectiveness of institutional arrangements, as well as focus on critical areas identified during the consultative process in relation to a plausible range of future scenarios.

The Assessment would be multi-scale, addressing global and sub-global (community to regional) issues. The global Assessment would address issues with

[1] UN Food and Agriculture Organization. Food for All. Rome, 1996.

broad relevance and would be interlinked with the sub-global (community to regional) Assessments. These sub-global Assessments, which would vary in scale from the continental to community level, would use a consistent methodology, cover a range of agro-ecological systems, and employ selection criteria that would take into account socio-economic and institutional conditions, and poverty mapping.

The proposed Assessment would be framed by historical lessons and plausible futures.

Historical lessons

- A critical retrospective (up to 50 years) of how agricultural knowledge, science and technology and institutional systems and policies have affected nutritional security and rural livelihoods for different segments of the population
- An analysis of factors responsible for significant differences (by region, farm scale, type of technology, etc.) in the use of agricultural knowledge, science and technology

Plausible futures

- Presentation of a plausible range of future scenarios for agricultural production (crops, livestock, fisheries, forests, fiber and biomass) and services between now and 2050 given a range of demographic, climatic, ecological, economic, socio-political, and technological projections

This framework would provide the context for an analysis of the:

1. Relevance, quality and effectiveness of agricultural knowledge, science and technology; and
2. Effectiveness of public and private sector policies and institutional arrangements in relation to agricultural knowledge, science and technology;

with respect to their impacts on:

- the reduction of hunger and poverty and the improvement of rural livelihoods;
- the environment (water, land use, soils, biodiversity and atmosphere);
- equitable, socially and economically sustainable development; and
- human health (nutrition and food safety).

The Assessment would take into account those enabling conditions and contextual issues that directly affect the use and effectiveness of agricultural knowledge, science and technology.

Expected Outputs of the Assessment

A series of published (printed and web-based) Assessment reports would be produced, including methodological reports on scaling (temporal and spatial) and critical in-depth global and sub-global Assessments of local and institutional knowledge and experiences. The Assessment reports would be translated into the six official UN languages, presented, and discussed at international, national and sub-national user forums, workshops and symposia involving the range of stakeholders.

Expected Outcomes of the Assessment

The Assessment process would bring together the range of stakeholders involved in the agricultural sector to share views, gain common understanding and vision for the future (present to 2050), develop new partnerships and provide robust information for decision makers. The Assessment would anticipate the challenges that the world will face over the next 50 years through the work on plausible futures.

The Assessment would have a major impact on how we manage the generation and use of agricultural knowledge, science and technology in the future by providing decision makers at all levels—from the field to the international arena—with critical information concerning agricultural science and technology. The Assessment would help identify public and private sector research and funding priorities, determine the effectiveness of institutional systems, and provide options for improvement.

Characteristics of the proposed Assessment

The Assessment would:

- be conducted using an open, transparent, representative and legitimate process
- involve a representative set of experts from all relevant stakeholder groups in the preparation of the Assessment using local and institutional knowledge[2]
- be intellectually rigorous (peer and stakeholder reviewed), but accessible and comprehensible to non-specialists
- complement, not duplicate, a number of ongoing activities[3]
- be policy relevant, not policy prescriptive
- incorporate gender analysis
- encompass risk and benefit analysis
- develop a consensus on what is known and unknown, explain different points of view and identify, and where possible quantify, the uncertainties
- assess options for action
- incorporate capacity-building activities
- incorporate a continuous and effective outreach and communications strategy

Governance and Management of the Proposed Assessment

An intergovernmental structure is proposed, with a multi-stakeholder Bureau. Decisions would be taken by governments in plenary meetings, open to all stakeholders, taking into account the recommendations of the Bureau, where appropriate. The proposed intergovernmental process should ensure ownership by governments, while the integrated Bureau allows the full range of stakeholders to meet as a single body creating opportunities for constructive exchanges and building consensus.

[2] The proposed assessment would build on the experience gained in the Millennium Ecosystem Assessment (MA) sub-global assessments and the outcomes of the MA conference on "Bridging Scales and Epistemologies," which will address cross-scale interactions as well as the incorporation of local, traditional and indigenous knowledge in scientific assessments.

[3] Annex 1 describes the complementarities among the proposed assessment and other related activities.

Cosponsoring Agencies and location of the Secretariat
Given the breadth of issues to be covered, and the desire that no single agency be allowed to dominate the process, the Assessment should be cosponsored by a combination of the World Bank, FAO, WHO, and UNEP, while encouraging the participation of other agencies, such as UNDP, UNESCO and IFAD. The secretariat should be technically competent with excellent communication capacity, and would operate transparently, while retaining autonomy. The secretariat should be hosted by the World Bank at a location agreed by the cosponsoring agencies.

Budget and sources of funding
The budget of the proposed Assessment would be about US $15 million over 2.5 years funded mainly through a "blind trust" supported by governments, international agencies, foundations, private sector and others.

Introduction

Today, access to sufficient, safe and nutritious food is the primary problem for nearly 800 million chronically undernourished people, the vast majority of whom live in rural areas. Yet, the demand for food is likely to double within the next 25-50 years, primarily in developing countries, as the global population increases to 8-10 billion. The global community confronts the enormous task of enhancing rural livelihoods and ensuring nutritional security in a world where the population is growing and evolving in consumption patterns while reversing environmental degradation, redressing social and gender inequity, and ensuring human health and well-being.

The demand for food will be further affected by the rapid urbanization of the developing world; increased per capita income; and changes in lifestyles and food preferences. These factors will have implications for food production, food distribution, and consequently, nutritional security and rural livelihoods.

Our agricultural research agendas and institutional systems will need to be focused appropriately to meet an increase in demand that will come at a time when there will probably be less water due to increased demand from other sectors, less arable land due to land degradation and urbanization, less labor due to HIV/AIDS and rural to urban migration, increased feminization of agriculture, increasing levels of acid deposition and tropospheric ozone, and a changing climate with warmer temperatures, increasing variability and more extreme events.

Hence, a key question concerns the effectiveness of current and future agricultural science and technology research agendas and institutions in reaching the goals of reducing poverty and improving nutritional security. Over US$35 billion is spent annually on agricultural research. We need to know if this money is well spent and where best to target science ands technology efforts—more productive crop

cultivars and animal breeds, improved nutritional quality, reduction of yield losses due to pests and diseases, improved post-harvest practices, more sustainable land, forest, fisheries and aquaculture practices, more efficient water management, improved genetic, species, and ecosystem conservation and management techniques—in order to most effectively fight poverty and hunger and we need to understand how to effectively use institutions in this fight. Finally, yet importantly, we need to know what policies are needed to ensure that agricultural production rises to meet demand in a framework of equitable, environmentally, socially, and economically sustainable development.

The philosophy of the Iroquois Confederacy "*In every deliberation, we must consider the impact of our decisions on the next seven generations*" is a guiding vision for sustainable development. We need to closely assess the effects of policy frameworks, farming systems and production technologies on water, land and soils, biodiversity, and atmosphere in order to ensure the well being of future generations.

Assessing the demand and the range of possibilities for meeting the demand for agricultural products and improving rural livelihoods is a multi-sectoral endeavor, requiring attention to a wide array of economic, environmental, ethical and social considerations and utilizing different perspectives such as gender, social and economic analysis. Successful technologies have been developed by small producers and by organic and low-external input producers, yet some of these remain unknown to most decision makers. The relative invisibility of these approaches as well as conflicting views on a number of emerging technologies underscore the need for a global dialogue.

Consumers have been concerned for a long time about food safety. The Assessment would address the state of knowledge of the risks and benefits of the range of agricultural technologies and products on human and animal health as well as the potential of agricultural knowledge, science and technology to improve food safety.

In light of the centrality of these issues to decision making, an international Assessment is needed now to provide a comprehensive, multidisciplinary analysis of issues critical to policy formulation.

Goal

Our goal is to provide decision makers with the information they need to reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of agricultural knowledge, science and technology.

Scope of the proposed Assessment

The Assessment would take interlinked short, medium and long-term perspectives (up to 2050) and use a multi-disciplinary approach to address the full range of agricultural products (crops, livestock, fisheries, forests, fiber, and biomass) and services. It would assess the economic, environmental, health and social (including gender) implications of current and potential future technologies. It would assess

what we can learn from the past by providing a critical retrospective of agricultural science and technology and the effectiveness of institutional arrangements, as well as focus on critical areas identified during the consultative process in relation to a plausible range of future scenarios. They include issues within the domain of global public goods that require international collaboration and discussion and issues characterized by rapidly changing contexts.

The Assessment would be multi-scale, addressing global and sub-global (community to regional) issues. The global Assessment would address issues with broad relevance and would be interlinked with the sub-global (community to regional) Assessments. These sub-global Assessments, which would vary in scale from the continental to community level, would use a consistent methodology, cover a range of agro-ecological systems, and employ selection criteria that would take into account socio-economic and institutional conditions, and poverty mapping.

The proposed Assessment would be framed by historical lessons and plausible futures.

Historical lessons

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Plausible futures

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This framework would provide the context for an analysis of the:

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with respect to their impacts on:

- The reduction of hunger and poverty and the improvement of rural livelihoods;
- The environment (water, land use, soils, biodiversity and atmosphere);
- Equitable, socially and economically sustainable development; and
- Human health (nutrition and food safety).

The Assessment would take into account those enabling conditions and contextual issues that directly affect the use and effectiveness of agricultural knowledge, science and technology.

Expected Outputs of the Assessment
A series of published (printed and web-based) Assessment reports would be produced, including methodological reports on scaling (temporal and spatial) and critical in-depth global and sub-global Assessments of local and institutional knowledge and experiences. The Assessment reports would be translated into the six official UN languages and presented and discussed at international, national and sub-national user forums, workshops and symposia involving the full range of stakeholders.

Expected Outcomes of the Assessment
The Assessment process would bring together the range of stakeholders involved in the agricultural sector to share views, gain common understanding and vision for the future (present to 2050), develop new partnerships and provide robust information for decision makers. The Assessment would anticipate the challenges that the world will face over the next 50 years through the work on plausible futures.

The Assessment would have a major impact on how we manage the generation and use of agricultural knowledge, science and technology in the future by providing decision makers at all levels—from the field to the international arena—with critical information concerning agricultural science and technology. The Assessment would help identify public and private sector research and funding priorities, determine the effectiveness of institutional systems, and provide options for improvement. Among the major expected outcomes of the Assessment would be:

- *A multi-stakeholder community* sharing a common vision, building trust and seeking innovative approaches for managing the generation and use of agricultural knowledge, science and technology to alleviate hunger and poverty, and ensure nutritional security.
- *Integrated local and institutional knowledge* to help reshape institutional and financing agendas for agricultural research, education/training and extension.
- *A framework that emphasizes partnerships and cooperation* for agricultural knowledge, science and technology to foster sustainable development.
- *Research agendas that are balanced between short-term demands and long-term challenges* based on lessons learned from past successes and failures.

Stakeholders (in particular, governments, multilateral organizations, private sector, foundations and the scientific community) would be able to understand the needs of producers and consumers, evaluate the effectiveness of relevant agricultural activities, including investments in national and international agricultural research, and assess how they can be more effective in the future. The Assessment would identify key information and implementation gaps that can be addressed through targeted research programs, evaluate why current technologies are not being

exploited, and present changes in policies and institutions to enable opportunities afforded by agricultural knowledge, science and technology to be realized.

Stakeholders would be able to better understand the benefits and risks of the range of agricultural products, e.g., the environmental and food safety implications of producing food using different technologies. Consumers would also be able to better understand the impacts of their consumption patterns and make informed choices.

Local producers and communities would contribute local knowledge, and would benefit by working in partnership with other stakeholders in crafting improved practices, research programs, policies and institutions.

NGOs would be able to improve their ability to meet the needs of producers, consumers and the public; strengthen advocacy on behalf of their members; and more effectively monitor government commitments.

The private sector would have better tools for planning activities to address the needs of poor people in the developing world. These tools would be developed in coordination with the other major stakeholders. The novel ground up approach would provide another metric for determining if products are adequately meeting the needs of stakeholders (e.g., local producers and shareholders). It will also facilitate increased contact with future customers regarding product and stewardship needs.

Characteristics of the Proposed Assessment

To be successful the Assessment should have the following characteristics:

Conducted using an open, transparent, representative and legitimate process: The Assessment would be demand-driven and open to all relevant stakeholders (all voices must be heard); it must be conducted in a transparent manner (the process must be understood); the participants must be representative of the relevant stakeholders; and the process must be considered legitimate by all stakeholders from the grass roots (e.g., producers and consumers) to the global level (governments and multi-national corporations). A set of Principles and Procedures (Annex III) outlines how the Assessment would be conducted to ensure openness, transparency, inclusiveness and legitimacy. Annex III describes the overall organizational structure; government eligibility for Panel membership; procedures for selecting Bureau members, including their desired technical qualifications; tasks and responsibilities for Bureau members; procedures for nominating and selecting the Assessment chair (or co-chairs), authors and editors; tasks and responsibilities of chair (or co-chairs), authors and editors; tasks for the secretariat; and procedures for the preparation, peer-review, acceptance, adoption, approval and publication of the Assessment Report(s) and the Summary for Decision Makers.

Involve a representative set of experts from all relevant stakeholder groups in the preparation of the Assessment using local and institutional knowledge: Appropriate expertise would be needed to prepare the Assessment, ensuring geographic, disciplinary and gender balance (author selection procedures are described in the Principles and Procedures). Experts are individuals, acting in their personal capacity, possessing information relevant to the questions being asked. Hence, experts with local knowledge (e.g., producers and community leaders) would play a critical role in place-based local studies.

Intellectually rigorous (peer and stakeholder reviewed) but accessible and comprehensible to non-specialists: A representative set of experts from all relevant stakeholder groups would be involved in the peer-review process. The Principles and Procedures describe how local and institutional knowledge would be reviewed by peers for accuracy and reproducibility. The report would be robust and accurate, but accessible and comprehensible to those who are not specialists in the material.

Complement, not duplicate, a number of ongoing activities: The Assessment would analyze existing local and institutional knowledge, as appropriate, and would complement, not duplicate, past and current activities, including ongoing international Assessments such as the Intergovernmental Panel on Climate Change (IPCC), the Millennium Ecosystem Assessment (MA) and the Global International Water Assessment (GIWA), the UN Millennium Development Goals task force on Hunger, and the Inter-Academy Council study of "How to Feed Africa." It would not duplicate the work of the World Trade Organization, FAO-WHO CODEX-Alimentarius or the work under the Cartegena Protocol on Biosafety of the Convention on Biological Diversity. It would build upon other relevant activities (see Annex II).

Policy relevant, not policy prescriptive: The Assessment would analyze information of importance to the range of relevant stakeholders/decision-makers. The Assessment would assess the effectiveness of research agendas, institutional systems and the economic, environmental, social and gender implications of different technologies, policies and practices, but would not recommend actions. It would, however, assess the implications of different decisions using the "if x," "then y" approach.

Incorporate gender analysis: In a context where the majority of poor producers today are women, gender inequity plays a significant role in differential access of agricultural science and technology and realization of benefits between men and women. Hence, the Assessment would specifically incorporate gender analysis.

Encompass risk and benefit analysis: The Assessment would use a risk-benefit framework for reviewing the application of technologies, policies and practices, how to manage the risks and capture the benefits, and to communicate the risks and benefits in an understandable and useful form to the range of relevant stakeholders.

Develop a consensus on what is known and unknown, explain different points of view and identify, and where possible, quantify, the uncertainties: The Assessment would analyze all relevant knowledge and identify where there is consensus on what is well known (well established) as well as what is uncertain. It would discuss minority points of view that cannot be discounted, and would identify and, where possible, quantify uncertainties.

Assess options for action: Present analyses of activities with the best potential for reducing hunger and poverty, improving nutritional security, and improving rural livelihoods.

Incorporate capacity-building activities: The Assessment would integrate capacity-building activities to ensure the effective engagement and participation of local expertise.

Incorporate a continuous and effective outreach and communications strategy: In order to ensure broad stakeholder engagement and interaction as well as effective public awareness, the Assessment process would include an effective communications, information and media relations strategy involving all stakeholders throughout the process.

Governance and Management of the Proposed Assessment

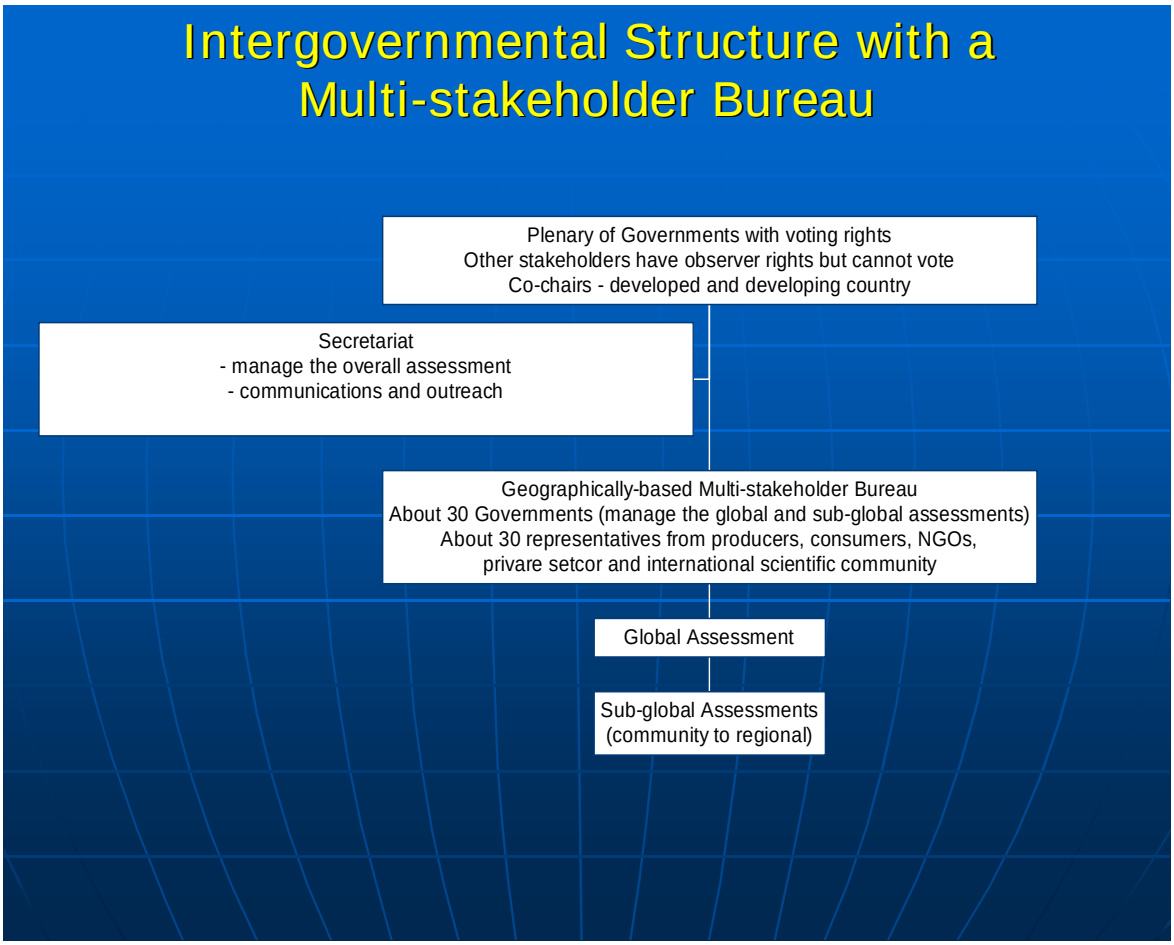
An intergovernmental structure is proposed (Figure 1). A detailed governance structure is in Annex III. The merits of the proposed structure include:

- An intergovernmental process that should ensure ownership by governments;
- An integrated Bureau that allows for meaningful multi-stakeholder participation, allowing the range of stakeholders to meet as a single body and hence create opportunities for exchanging views and building consensus
- Well-defined roles and responsibilities for Bureau members (outlined in Annex III: Principles and Procedures)
- The sub-global Assessments would be guided by the relevant Bureau members, e.g., The African sub-global Assessment would be guided by the African Bureau members.

Cosponsoring Agencies and location of the Secretariat

Given the breadth of issues to be covered, and the desire that no single agency be allowed to dominate the process, the Assessment should be cosponsored by a combination of the World Bank, FAO, WHO, and UNEP, while encouraging the participation of other agencies, such as UNDP, UNESCO and IFAD. The secretariat should be technically competent with excellent communication capacity, and will operate in transparent mode, while retaining autonomy. The secretariat would be hosted by the World Bank at a location agreed by the cosponsoring agencies.

Figure 1



Budget and sources of funding

The budget of the proposed Assessment would be about US $15 million over 2.5 years funded mainly through a “blind trust” supported by governments, international agencies, foundations, private sector and others, as well as additional in kind contributions.

Item	Estimated Budget (US$ K)
Design meetings for the global Assessment (100 experts)	300
Expert plenary and chapter meetings for the global Assessment	2000
Design meetings for the sub-global Assessments (50 experts each)	500
Expert meetings for the sub-global Assessments	4000
Three plenary meetings of governments and experts	2500
Three Bureau meetings	300
Meetings of non-governmental groups (producers, consumers, etc.)	400
Secretariats for overall (inc global) and sub-global Assessments	3000

Communications and Outreach, including translation		2000
	Total	**15,000**

Budgetary Assumptions

- An intergovernmental process;
- Conducted in 2.5 years from initiation to publication;
- Bureau and Plenary meetings conducted in the six official UN languages;
- No honoraria or salary costs for the preparation and peer-review of the Assessment reports;
- The travel costs of OECD experts paid by their own governments;
- Travel costs of OECD government representatives to the Bureau and Plenary meetings paid by their own governments;
- Travel costs for developing country and CEIT experts and government representatives to the Bureau and Plenary meetings are based on economy class tickets;
- All expert meetings associated with the global Assessment conducted in English – the executive summary would be translated into the UN languages for review and final publication;
- All sub-global expert meetings can be conducted in the language most appropriate to that region, with Assessment documents in both English and the most appropriate language for that region;
- Inclusion of capacity-building activities; and
- In-kind contributions are not included in the proposed budget, but are encouraged.

Some additional funds would be required to provide for the participation of the resource poor, e.g., local producers and community-based organizations.

Steering Committee for Consultative Process

Co-chairs

Louise Fresco, Assistant Director General for Agriculture, FAO
Seyfu Ketema, Executive Secretary, Association for Strengthening Agricultural Research in East and Central Africa (ASARECA)
Claudia Martinez Zuleta, Former Deputy Minister of the Environment, Colombia
Rita Sharma, Principal Secretary and Rural Infrastructure Commissioner, Government of Uttar Pradesh, India
Robert T. Watson, Chief Scientist, The World Bank

Non-governmental Organizations

Benny Haerlin, Advisor, Greenpeace International
Marcia Ishii-Eiteman, Senior Scientist, Pesticide Action Network North America Regional Center (PANNA)
Monica Kapiriri, Regional Program Officer for NGO Enhancement and Rural Development, Aga Khan
Raymond C. Offenheiser, President, Oxfam America
Daniel Rodriguez, International Technology Development Group (ITDG), Latin America Regional Office, Peru

UN Bodies

Ivar Baste, Chief, Environment Assessment Branch, UN Environment Program
Wim van Eck, Senior Advisor, Sustainable Development and Healthy Environments, World Health Organization
Joke Waller-Hunter, Executive Secretary, UN Framework Convention on Climate Change
Hamdallah Zedan, Executive Secretary, UN Convention on Biological Diversity

At-large Scientists

Adrienne Clarke, Laureate Professor, School of Botany, University of Melbourne, Australia
Denis Lucey, Professor of Food Economics, Dept. of Food Business & Development, University College Cork, Ireland, and Vice-President NATURA
Vo-tong Xuan, Rector, Angiang University, Vietnam

Private Sector

Momtaz Faruki Chowdhury, Director, Agribusiness Center for Competitiveness and Enterprise Development, Bangladesh
Sam Dryden, Managing Director, Emergent Genetics
David Evans, Former Head of Research and Technology, Syngenta International
Steve Parry, Sustainable Agriculture Research and Development Program Leader, Unilever
Mumeka M. Wright, Director, Bimzi Ltd., Zambia

Consumer Groups

Michael Hansen, Consumers International
Greg Jaffe, Director, Biotechnology Project, Center for Science in the Public Interest
Samuel Ochieng, Chief Executive, Consumer Information Network

Producer Organizations

Mercy Karanja, Chief Executive Officer, Kenya National Farmers' Union
Prabha Mahale, World Board, International Federation Organic Agriculture Movements (IFOAM)
Tsakani Ngomane, Director Agricultural Extension Services, Department of Agriculture, Limpopo Province, Republic of South Africa
Armando Paredes, Presidente, Consejo Nacional Agropecuario (CNA)

Scientific Organizations

Jorge Ardila Vásquez, Director Area of Technology and Innovation, Inter-American Institute for Cooperation on Agriculture (IICA)
Samuel Bruce-Oliver, NARS Senior Fellow, Global Forum for Agricultural Research Secretariat
Adel El-Beltagy, Chair, Center Directors Committee, Consultative Group on International Agricultural Research (CGIAR)
Carl Greenidge, Director, Center for Rural and Technical Cooperation, Netherlands
Mohamed Hassan, Executive Director, Third World Academy of Sciences (TWAS)
Mark Holderness, Head Crop and Pest Management, CAB International
Charlotte Johnson-Welch, Public Health and Gender Specialist and Nata Duvvury, Director Social Conflict and Transformation Team, International Center for Research on Women (ICRW)
Thomas Rosswall, Executive Director, International Council for Science (ICSU)
Judi Wakhungu, Executive Director, African Center for Technology Studies

Governments

Australia: Peter Core, Director, Australian Centre for International Agricultural Research
China: Keming Qian, Director General Inst. Agricultural Economics, Dept. of International Cooperation, Chinese Academy of Agricultural Science
Finland: Tiina Huvio, Senior Advisor, Agriculture and Rural Development
France: Alain Derevier, Senior Advisor, Research for Sustainable Development, Ministry of Foreign Affairs
Germany: Hans-Jochen de Haas, Head, Agricultural and Rural Development, Federal Ministry of Economic Cooperation and Development (BMZ)
Hungary: Zoltan Bedo, Director, Agricultural Research Institute, Hungarian Academy of Sciences
Ireland: Aidan O'Driscoll, Assistant Secretary General, Department of Agriculture and Food
Morocco: Hamid Narjisse, Director General, INRA
Russia: Eugenia Serova, Head, Agrarian Policy Division, Institute for Economy in Transition
Uganda: Grace Akello, Minister of State for Northern Uganda Rehabilitation
United Kingdom Paul Spray, Head of Research, DFID
United States: Rodney Brown, Deputy Under Secretary of Agriculture and Hans Klemm, Director of the Office of Agriculture, Biotechnology and Textile Trade Affairs, Department of State

Foundations and Unions

Susan Sechler, Senior Advisor on Biotechnology Policy, Rockefeller Foundation

Achim Steiner, Director General, The World Conservation Union (IUCN)
Eugene Terry, Director, African Agricultural Technology Foundation

Annex II

Relationship of Assessment to Other Activities

The Proposed assessment would complement other recent or ongoing activities. The two most relevant activities are the Inter-Academy Council Study on Science and Technology Strategies for Improved Agricultural Productivity and Food Security in Africa, and the Millennium Development Goal Task Force on Hunger. A memorandum of understanding from the co-chairs of the IAC, MDG and this proposed assessment was forwarded to Kofi Annan on November 4, 2002 outlining the scope of the three activities, demonstrating the complementarities among them and that the co-chairs are in constant contact with each other. This Annex briefly outlines the scope of the IAC and MDG activities and other related activities and highlights how the proposed assessment builds upon and complements them. One key difference between the proposed Intergovernmental Assessment and other activities is that the proposed structure is fully inclusive of all stakeholders, including all governments, and it would involve 100s of local and institutional experts.

1. The Inter-Academy Council Study on Science and Technology Strategies for Improved Agricultural Productivity and Food Security in Africa

In March 2002, Kofi Annan, the Secretary General of the United Nations asked the InterAcademy Council (IAC) to develop a strategic plan on how best to harness technology and science to improve food security in Africa. A Study Panel of 19 members with expertise in science, economics and technology delineated the scope of the study and commissioned the drafting of resource documents. The Panel also convened four regional consultative workshops in Africa during January and February 2003. The purpose of the workshops was twofold: to garner better understanding of the regional constraints to improved agricultural productivity and to identify explicitly the role of science and technology in alleviating constraints and exploiting opportunities.

UN agencies, such as FAO, are fully participating in the development of the plan. While the report would primarily develop a technological strategy for shaping Africa's agricultural future, it will address also the conditional setting for activating the use of science and technology. Specific action proposals will emphasize the role of both the public and private sector. The objective of the study is to foster food production in Africa by outlining the necessary conditions to achieve food security. The IAC report is due in 2003 and is intended to be a tool for immediate action.

There are key synergies between the proposed Intergovernmental Assessment and the IAC study. The International Assessment will build on the IAC study, which is similar in scope, but limited to Africa. The key differences are time frame and geography. The International Assessment will evaluate the viability of strategies over the longer time frame (20-50 years) and for all regions of the world.

The IAC study is looking at health issues (such as malaria, HIV/AIDS), which affect agricultural productivity. The proposed Intergovernmental Assessment will address the effects of technologies on human and animal health as well as productivity. Similarly, both studies will assess natural resource constraints but the proposed Intergovernmental Assessment will include concerns about ecosystems and biodiversity.

2. Millennium Development Goal Task Force on Hunger

The UN General Assembly agreed to a set of Millennium Development Goals (MDGs) in September 2000. Early in 2002, Secretary General Annan asked Professor Jeffery Sachs to direct the UN MDG Program, a program designed to develop action plans to meet targets such as halving extreme poverty, achieving universal primary education, halting the spread of AIDS and other diseases and reversing the loss of environmental resources.

The Hunger Task Force addresses the MDG target of reducing by half between 1990 and 2015 the proportion of people who suffer from hunger. About 20 leaders from science, policy, the civil society, the private sector, UN agencies and developing country governments will produce and implement recommendations aimed at reducing hunger. The global strategy is based on the following key elements:

1. Drastically increase food security of farmers in higher-risk environments and remote reigns: a "Doubly Green Revolution" (increasing production while enhancing the environment) for Africa and mountainous or dry areas of Asia and Latin America.
2. Expand ownership and control of natural assets to poor households and communities.
3. Improve agricultural input and product markets and business linkages to benefit the poor.
4. Directly enhance nutrition of the most hungry and vulnerable through community life cycle nutrition programs.
5. Improve famine prevention and response by expanding the use of best practices.
6. Integrate hunger reduction strategies into national policies.

While Africa is the first priority, food-exporting countries such as India and China are also included. The Task Force report is due at end of 2004.

There are two major differences between the work of the Task Force and the proposed Intergovernmental Assessment: time frame and "assessment." The Task Force aims to have an impact prior to 2015, whereas the proposed Intergovernmental Assessment will address the longer term, i.e., to 2050. The Task Force will not assess science and technologies in relation to hunger and rural poverty, but will strive to recommend programs that fulfill the six directives above

over a three-year time frame. The Task Force will identify science and technology as one tool for combating hunger, whereas the proposed Intergovernmental Assessment will discuss ways to better mobilize science and technology to do so.

Other –related activities

This is **not** meant to be an exhaustive list, but examples of activities that will be used in the proposed Intergovernmental Assessment:

- FAO/SOFI – The State of Food Insecurity in the world are reports produced annually on global and national efforts to reach the goal set by the 1996 World Food Summit: to reduce by half the number of undernourished people in the world by the year 2015.
- GFAR – The Global Forum on Agricultural Research is a multi-stakeholder initiative that contributes to eradicating poverty, achieving food security, and conserving and managing natural resources. It enhances national capacities to generate, adapt and transfer knowledge.
- CGIAR – The Consultative Group on International Agricultural Research are in the midst of a reform and research priority-setting exercise.
- IFPRI – The International Food Policy Research Institute has launched a initiative to develop scenarios of plausible futures for use in upcoming studies.
- IPCC – The work of the Intergovernmental Panel on Climate Change involves plausible scenarios, which contain information on projections and climate change that contain significant implications for agriculture.
- MA – The Millennium Ecosystem Assessment is currently undergoing a study on the implications of historical and projected changes in ecosystem goods and services on agriculture.

Annex III

Principles and Procedures Governing an Intergovernmental Assessment on Agricultural Science and Technology

Purpose

1. The international Assessment on the future role of agricultural science and technology in reducing hunger and poverty, improving rural livelihoods, and facilitating equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of agricultural knowledge, science and technology (hereinafter referred to as the Assessment) shall concentrate its activities on the task of a critical review of the literature, experience and knowledge pertaining to the scope of the Assessment as defined by the Panel of participating governments.

2. The role of the Assessment would be to analyze in a comprehensive, open and transparent fashion the scientific, technical and socio-economic literature, experience and knowledge relevant to how agricultural science and technology can reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access and use of agricultural knowledge, science and technology. The Assessment report should be neutral with respect to policy, and deal objectively with scientific, technical and socio-economic factors relevant to the application of certain policies.

3. Peer-review of local and institutional knowledge by relevant experts both in and outside of government shall be an essential part of the Assessment process.

Organization

4. The Panel of participating governments shall make major decisions of the Assessment in plenary meetings, taking into consideration input from the full range of stakeholders. The Panel will elect the government representatives of the multi-stakeholder Bureau for oversight management. The non-governmental stakeholders (producers including their organizations, consumer, NGOs and the private sector) would select their own members of the Bureau. All Bureau members should have relevant technical and scientific expertise in a field such as agriculture (production, marketing, processing, research, etc.) health, nutrition, gender, or the environment. In addition, individuals should promote trust among the Stakeholders and demonstrate broad vision. Responsibilities of the Bureau will include making recommendations to the Panel on authors, reviewers and co-chairs. The Bureau will also advise on financial matters. However, decisions will be made by the Panel. The Bureau will be effectively balanced with respect to gender and geographic representation with due consideration for the required expertise.

The co-chairs for the Assessment will be elected by the Plenary upon recommendation by the Bureau. They will be from a developed and developing country. They will be responsible for chairing the Plenary and Bureau sessions and for providing overall intellectual leadership for the Assessment.

The Secretariat will oversee the day-to-day management of the Assessment with oversight by the government members of the Bureau. The Secretariat will act as a technical support unit for the Assessment and will organize sessions of the Panel and of its Bureau and sessions of the global and sub-global (community to regional) Assessments. The Secretariat will propose the annual budget and manage the Trust Fund. It will oversee and coordinate Assessment public information and outreach activities; it will publicize and disseminate reports to the relevant stakeholder groups, including translation of summaries into all UN official languages. The Secretariat will monitor the progress of Assessment activities and ensure coordination among global and sub-global (community to regional) Assessments. It will liaise with member governments and other relevant stakeholder organizations on Assessment matters. The Director of the Secretariat will be appointed by the Heads of Cosponsoring Agencies and will provide intellectual leadership along with the Co-chairs. The staff will be appointed by the Director and will be drawn from the Cosponsoring Agencies as well as from outside. These representatives will have the requisite technical, communication and administrative skills.

Participation

5. Participation in the Plenary will be open to all Member countries of the Cosponsoring Agencies.

6. Invitations to participate in the plenary meetings shall be extended to governments and other bodies by the Co-chairs of the Assessment.

7. Experts from Member countries or international, intergovernmental or non-governmental entities may be invited in their own right (personal capacity) to contribute to the preparation and peer-review of the Assessment. The Bureau will make the initial selection of authors, based on nominations from all stakeholder groups; final approval will be by the Panel of participating governments. Governments shall be informed in advance of invitations extended to experts with citizenship in their countries and shall be allowed to nominate additional experts.

Procedures

8. In taking decisions regarding all matters related to the Assessment, and approving, adopting and accepting the report, the Panel shall use all best endeavors to reach consensus. If consensus is judged by the relevant body not possible the following procedure should be followed: (a) for decisions on procedural issues, these shall be decided according to the General Regulations of the umbrella UN Agencies; (b) for approval, adoption and acceptance of the report, differing views shall be explained and, upon request, recorded. Differing views on a matter

concerning a scientific, technical or socio-economic document shall be represented in the document concerned. Differing views on matters of policy shall be recorded in the report of the session.

9. The Assessment report shall be made available to governments and other approved bodies by the Secretariat at least four weeks in advance of the plenary for final acceptance/adoption/approval and, to the extent possible, the Summary for Decision Makers be distributed in all official UN languages.

10. Interpretation into all official UN languages shall be provided for all sessions of the Plenary.

11. Procedures for the preparation, review, acceptance, approval, adoption and publication of the Assessment Report are given in Appendix A.

12. Financial procedures are given in Appendix B (not included here).

Appendix A to Principles governing the Assessment: *Procedures for the preparation, review, acceptance, adoption, approval and publication of the Assessment Report*

This appendix to the Principles governing the Assessment work contains the procedures for the preparation, review, acceptance, adoption, approval and publication of the Report and the Summary for Decision Makers.

Definitions

"Acceptance" signifies that the material has not been subjected to line-by-line discussion and agreement, but represents a comprehensive, objective and balanced view of the subject matter.

"Adoption" is a process of endorsement section by section (i.e., not line-by-line).

"Approval" signifies that the material has been subjected to line-by-line discussion and agreement.

"Assessment report" is the published material of the full scientific and technical analysis.

"Panel Members or Members of the Assessment" are countries who are Members of the Cosponsoring Agencies.

"Session of the Bureau" refers to meetings of the elected governmental and non-governmental members of the Assessment Bureau – elected governmental members may be accompanied by a representative of their government for issues of policy, e.g., budget

"Plenary Session" refers to meetings of the Member countries and observers.

Preparation and Peer-Review Process

The preparation and peer-review process should take place in six stages:
- Preparation of the first-order draft report;
- Expert (peer) review of the first-order draft report;
- Preparation of the second-order draft report;
- Government/expert review of the second-order draft report;
- Preparation of the final report; and
- Government review and approval of the Summary for Decision Makers.

At least six to eight weeks should be allotted for review by experts and governments. All written expert and government review comments will be made available to reviewers on request during the review process and will be retained in an open archive in a location determined by the Assessment Bureau on completion of the Report for a period of at least five years.

The purpose of the review process is to ensure that the Assessment Report presents a comprehensive, objective and balanced view of both local and institutional knowledge. The content of the authored chapters is the responsibility of the lead authors. Only grammatical and or minor editorial changes can be made prior to publication. To ensure proper preparation and review, the following steps should be taken:

1. Compilation of recommendations for Coordinating Lead Authors, Lead Authors, Contributing Authors, Expert Reviewers, Review Editors and Governmental and non-governmental Focal Points
2. Selection of Coordinating Lead Authors and Lead Authors
3. Preparation of draft Report
4. Review
    - First draft by experts
    - Second draft by governments and experts
5. Preparation of final Draft Report
6. Acceptance of Report at a session of the Plenary

Compilation of Author and Editor Lists

At the request of the Bureau through the Secretariat, governments and participating organizations should identify appropriate experts with local and institutional knowledge for each Chapter in the Report to act as Coordinating Lead Authors, Lead Authors, Contributing Authors, Expert reviewers or Review Editors. To facilitate the identification of experts and later peer-review by governments and non-governmental stakeholders, governments and non-governmental stakeholders should designate their respective Focal Points. Bureau members should help to ensure, where necessary, balanced representation of experts and reviewers from

developed countries, developing countries, and countries with economies in transition. These recommendations shall be assembled into lists available to all Members of the Panel and shall be maintained by the Secretariat. The tasks and responsibilities of Coordinating Lead Authors, Lead Authors, Lead Authors, Contributing Authors, Expert Reviewers, Review Editors and government Focal Points are outlined in Annex 1.

Selection of Authors

Coordinating Lead Authors and Lead Authors for each chapter shall be selected by the Bureau from those experts cited in the lists provided to the Bureau by governments and participating organizations. The composition of the group shall reflect the need to aim for a range of views, expertise and geographical representation, taking into account local and institutional knowledge. The Coordinating Lead Authors and Lead Authors selected by Bureau may enlist other experts as Contributing Authors to assist in their work.

At the earliest opportunity, the Secretariat shall inform the Panel, Bureau, and participating organizations of the Coordinating Lead Authors and Lead Authors responsible for each chapter.

Preparation of Draft Report

Coordinating Lead Authors and Lead Authors should undertake preparation of the first draft of the Report. Local and institutional knowledge should be used as appropriate. Experts who wish to contribute local and institutional knowledge for consideration in the first draft should submit it directly to the Lead Authors. Contributions of institutional knowledge should be supported as far as possible with references from the peer-reviewed and internationally available literature, including selected non-peer review manuscripts that can be made available for review according to Annex 2. Institutional knowledge that is not published may only be included if its inclusion is fully justified in the context of the Assessment process. Clear indications of how to access the latter should be included.

Review

Four general principles should govern the review process:

1. The Report should include the latest scientific, technical and social findings as comprehensively as possible;
2. Circulation should aim to involve as many experts as possible, with particular attention to independent experts (not involved in the preparation of the chapter) from developed countries, developing countries, and countries with economies in transition;
3. The review should be objective, open and transparent; and
4. Local and institutional knowledge should be reviewed by appropriate experts.

First draft: The first draft should be circulated to all appropriate reviewers selected by the Bureau, as well as those on the lists submitted by governments and other

participating organizations, noting the need to aim for a range of views, expertise, and geographical representation. It should be sent to each Member Focal Point, along with a list of those to whom the Report was sent for review in that particular country. Coordinating Lead Authors, in consultation with the Review Editors and the Secretariat, are encouraged to supplement the draft revisions process by organizing a wider meeting with principal Lead Authors and expert reviewers, if time and funding permit, in order to pay special attention to particular points where major differences exist.

Second draft: The revised draft should be circulated through the designated Focal Points and to all Coordinating Lead Authors, Lead Authors, Contributing Authors and expert reviewers. Non-government expert reviewers should provide comments to the appropriate Lead Authors with a copy to their government Focal Point. Governments should send one integrated set of comments.

Preparation of final draft

The Coordinating Lead Authors and Lead Authors in consultation with the Review Editors should prepare the final draft Report. Government and expert comments should be considered in this final draft. If necessary, and if time and finances permit, a wider meeting with Coordinating Lead Authors and Lead Authors and expert and government reviewers shall be encouraged in order to pay special attention to particular points of assessment or areas of major scientific difference. It is important that the Report describe different (possibly controversial) scientific, technical, and socio-economic views on a subject, particularly if they are relevant to a policy debate. The final draft should credit all Coordinating Lead Authors, Lead Authors, Contributing Authors, reviewers and Review Editors by name and affiliation at the end of the Report text.

Approval and acceptance of Summary for Decision Makers

Summary sections of the Report approved and accepted by the Panel will principally comprise the Summary for Decision Makers. It should be subject to simultaneous review by both experts and governments and to a final line-by-line approval by a session of the Plenary. The Summary for Decision Makers should be prepared concurrently with the main Report.

Approval of the Summary for Decision Makers signifies that it is consistent with the factual material contained in the full Assessment Report. Coordinating Lead Authors may be asked to provide technical assistance in ensuring the two documents are consistent. The Summary for Decision Makers should be formally and prominently described as: “A Report of the International Assessment on Agricultural Science and Technology.”

Annex 1: Tasks and responsibilities for Lead Authors, Coordinating Lead Authors, Contributing Authors, Expert Reviewers and Review Editors of the Assessment Report and Government Focal Points

1. Lead Authors

Function: Responsible for the production of designated sections addressing items on the work program based on the best scientific and technical information available.

Comment: Lead Authors will typically work as small groups that have the responsibility for ensuring that the various components of their sections are brought together on time, are of uniformly high quality, and conform to any overall standards of style set for the document as a whole.

The task of Lead Authors is a demanding one and in recognition of this, the names of Lead Authors will appear prominently in the final Report. During the final stages of Report preparation, when the workload is often particularly heavy and Lead Authors are heavily dependent upon each other to read and edit material, and to agree to changes promptly, it is essential that the work should be accorded the highest priority.

The essence of the Lead Authors' task is the synthesis of material drawn from available literature. Lead Authors, in conjunction with Review Editors, are also required to take into account expert and government review comments. Lead Authors may not necessarily write original text themselves. Nevertheless, they must have the proven ability to develop text that is scientifically and technically sound and that faithfully represents, to the extent that this is possible, contributions by a wide variety of experts. The ability to complete work by deadlines is critical.

Lead Authors are required to record in the Report views that cannot be reconciled with a consensus view but that are nonetheless scientifically or technically valid. Lead Authors may convene meetings with Contributing Authors, as appropriate, in the preparations of their sections or to discuss expert or government review comments. The names of all Lead Authors will be acknowledged in the Report.

2. Coordinating Lead Authors

Function: Overall responsibility for a chapter.

Comment: Coordinating Lead Authors will function as Lead Authors and ensure that the Chapter of the Report for which they are responsible is completed to a high standard in a timely manner and in conformance with style requirements. Coordinating Lead Authors will play a leading role in ensuring the coordination of crosscutting scientific and technical issues across different chapters so the report is complete, coherent and reflects the latest information available. It is essential that Coordinating Lead Authors have organizational skills as well as the skills and resources required of Lead Authors. The names of Coordinating Lead Authors will be acknowledged in the Report.

3. Contributing Authors

Function: Prepare technical information in the form of text, graphs, or data for assimilation by Lead Authors.

Comment: Input from a wide range of contributors will be key to the success of the Report. Contributions should be supported with references from the peer-reviewed and internationally available literature if possible. For material that does not fit into these categories, copies must be provided to the Secretariat with clear instructions on how to access the material.

4. Reviewers

Function: To comment on the accuracy and completeness of the scientific and technical content and the overall balance.
Comment: Reviewers for local and institutional knowledge will comment according to their own knowledge and experience. They may be nominated by Governments, regional, national and international organizations, Lead Authors and Contributing Authors.

5. Review Editors

Function: Will assist in identifying reviewers, ensure that all substantive expert and government review comment are given appropriate consideration, advise lead authors on how to handle contentious/controversial issues and ensure genuine controversies are adequately reflected in the text of the Report.
Comment: One or two per Chapter. In order to carry out these tasks, Review Editors will need a broad understanding of the wider scientific and technical issues. Although responsibility for the final text remains with the Lead Authors, Review Editors will need to ensure that where significant differences of opinion remain, such differences are described in an annex to the Report.

6. Government and Non-Government Focal Points

Function: To prepare a list of national experts as required to implement the work program and to arrange the provision of integrated comments on the accuracy and completeness of the scientific and/or technical content and balance.
Comment: Government review will typically be carried out within and between a number of Departments and Ministries. For administrative convenience, each government and participating organization should designate one Focal Point for all Assessment activities, provide full information on contact coordinates for this person to the Assessment Secretariat and notify the Secretariat of any changes in this information. The Focal Point should liaise with the Assessment Secretariat regarding the logistics of the review process.

Annex 2: Procedures for using non-published/non-peer-reviewed sources in the Assessment Report

1. *Responsibilities of Coordinating, Lead and Contributing Authors*: Authors who wish to include information from a non-published/no-peer-reviewed source are requested to:

a. Critically assess any source. Each chapter team should review the quality and validity of the source.

b. Send one copy of each unpublished source to the Coordinating Lead Authors, including the following information:

- Title
- Author(s)
- Name of journal or other publication in which it appears, if applicable
- Information on the availability of underlying data to public
- English-language executive summary or abstract, if source not written in English
- Names and contact information for 1 to 2 people who can be contacted for more information about the source.

2. *Responsibilities of Review Editors:* The Review Editors will ensure that these sources are selected and used in a consistent manner across the Report.

3. *Responsibilities of the Assessment Secretariat:* The Secretariat will store the complete sets of indexed, non-published sources and send copies to reviewers who request them.

4. *Treatment in Report:* The reference sections of the Report will contain both sources that have been peer-reviewed and those that have not been peer-reviewed. If the source was not peer-reviewed, a note will indicate that this is the case and will provide details on how to access the material.