determine its own preferences. Some countries may agree to common approaches (i.e., to pool part of their respective summaries for Decision Makers as well as a Synthesis Report, including an Executive Summary. The reports were accepted at an Inter-governmental Plenary in Johannesburg in April 2008.

The assessment was sponsored by the United Nations, the World Bank and the Global Environment Facility (GEF). Five UN agencies were involved: the Food and Agriculture Organization (FAO), the UN Development Program (UNDP), the UN Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO).

For more information on IAASTD, please see www.agassessment.org; the World Health Organization (WHO).
Innovation policies

Institutional options for promoting innovation include:
1. Reform of the allocation of ministerial responsibilities, so that political decisions concerning agriculture and food are made in conjunction with other interests. For example, in 1969 Costa Rica placed the protection of biodiversity and prevention of deforestation under a new Ministry of the Environment, Energy, Mines, Water and Natural Resources. Today over 96% of the country’s energy is produced by renewable and natural sources and its agriculture has evolved to take account of water scarcity. The formation of the Department of Environment, Food and Rural Affairs in the United Kingdom represents a similar rebalancing of interests.

2. Full-cost pricing of agriculture and food industries. As yet, none of the numerous examples of full-cost accounting have been accepted as the standard or are in routine use. Prices and expenditure models continue to give inadequate readings of the true costs, e.g., no accounting of social and environmental externalities.

Reform of commodity trade and other agricultural and food markets

How are trade and market institutions promoting sustainable and equitable development in terms of the distribution of incomes, assets, and agricultural and natural resources?

Transition toward reduced trade barriers and elimi-
nation of tariff and nontariff barriers for processed commodi-
ties in general would benefit developing countries. Developing countries would benefit from multilateral trade and other barriers among themselves from deepened generalized preferential access to developed country markets for commodities of importance to rural livelihoods; and from increased public investment in local value addition.

The opportunities for small-scale producers to benefit from the increasing demand for quality food by the urban middle classes in developing countries are modest. In many cases governments have taken no positive action to establish appropriate institutions for food production, procurement, food trade and retail markets that direct opportunities and benefits to small-scale producers, traders and local retailers.

The options for redressing the imbalance include, among other things, increasing investments in research capacities in developing countries; measures to reduce regulatory costs so that the threshold for new entrants is lowered and competition increases; and strengthened protection for the intellectual property rights of indigenous and community IP.

Intellectual property rights

IPR rewards innovation by means of exclusionary rights on knowledge and information that can exist in any sector, and material. Advocates argue that strong IPRs are necessary incentives to research and development in modern genetic sciences and leading-edge biotechnologies. Others point to the complexity of the emerging IPR regime and the increasing concentration of control over seeds and other resources in a few global companies as evidence that IPRs can inhibit progress toward sustainabil-

ity and development.

Governance and management of the flow of AKST

In the 1980s soybean production shifted from small- and medium-scale production (averaging 30 ha) in the heart and southeastern regions, to Mato Grosso and Goiás, with an average farm size of 1,000 hectares. A single company, Andre Maggi, has 150,000 hectares and produces one million tonnes of soybean per year. The consequence of this concentration in farm size has led to an increase in rural unemployment and food insecurity, spurring migration to the cities.

The soybean market is characterized by a high degree of integration, as large corporations control the production, processing and marketing in both exporting and importing countries. The four corporations that dominate the soybean market (Bunge, ADM, Cargill and Dreyfus), also process soybeans. Cargill claims to be the largest company worldwide engaged in the extraction of soybean oil. It is also the largest exporter of vegetable oil and soy protein in Argentina. Dreyfus is the third leading vegetable oil processor in South America in terms of volume, and owns and operates a giant port on the Paraná River and a large crushing plant.

Some developing countries have significantly increased their soybean exports; many have become large soybean exporters. Exporting booming growth in soybean production in Latin America has contributed to increased malnutrition in the world. The integration of the soybean food chain in Latin America: From the producers to the consumers - Only a small fraction of soybean production is consumed directly as food for humans, the rest is processed mainly to produce oil for the food industry and as high-protein tablets for animal feed.

In Brazil, it is estimated that the soybean crop employs one million persons directly and that the soybean industrial complex employs some five million people.
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There are four key areas in which we can improve arrangements, people have benefited unevenly from increased farm production; distortions in access to food remain; and gains have come at an unsustainable cost to natural resources.

Trade liberalization in the absence of balanced institutions and infrastructures can lead to long-term negative effects on poverty.

Institutional options for promoting innovation in -

1. Reform of the allocation of ministerial responsibilities, so that political decisions concerning agriculture and food are made in cooperation with other sectors. For example, in 1969 Cos-ta Rica placed the protection of biodiversity and the abstract or is embedded in biological processes

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3. Intellectual Property Rights (IPR); and

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Reform of commodity trade and other agricultural and food markets

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determine its own preferences. Some countries may agree to common approaches (i.e., to pool part of their sovereignty in food and agricultural matters to achieve Good Practice Standards in food and agriculture. The European Union and India, for instance, have chosen to make Integrated Pest Management the standard crop protection approach. Development of independent institutions for assessing, screening and monitoring the impacts of technology choices is all the more necessary because of the increasing dominance of private interests.

Reassess standard policies

• Recognize that food security in most developing countries is best served by placing the production and profitability of small-scale farmers at the heart of development policies.

• Invest in the development of local institutions and capacities, enable national and regional food markets, and provide opportunities for value-addition to a range of related enterprises.

• Support investments important for local food security, including rural roads and storage facilities.

• Strengthen and access tenure to land, forest, water and resources for both men and women.

• Promote and fund public investments in AKST by strengthening skills at the local level, opening access to agricultural technologies to women and rural youth, and by supporting local and indigenous capacities to use locally generated agricultural knowledge and livelihoods to adapt to and mitigate environmental change.

• Establish national and regional safety nets and public food distribution systems to meet basic needs and provide buffer stocks against food price shocks.

The Way Forward

Strong collective will and creativity are needed to develop new institutional governance arrangements that can generate and implement appropriate policies that prioritize the small-scale farm sector; rural livelihoods; national food security; a public goods focus; agricultural research agendas; and sustainable management of natural resources.

Options include:

• Targeting AKST towards choices that combine productivity and protection of natural resources and ecosystems, and that return a greater proportion of the profits from food and farming to small-scale producers and rural laborers.

• Assisting crop, fish farming, biofuel, forestry and livestock systems to adapt to increasing rainfall variability, higher intensity rainfall events and rising temperatures and to contribute more to climate change mitigation.

• Increasing investment in the development of rural areas, livelihoods and farming enterprises in the tropics.

• Seeking a balanced approach to export oriented production while supporting production needs to meet domestic needs and create opportunities for value addition.

• Creating institutions for value-addition in agricultural and food systems that distribute benefits fairly and equitably along the chain.

• Strengthening developing countries’ institutional skills and capacities to negotiate international trade, macro-level policy changes and sectoral-linkages.

• Building new collective security mechanisms for food stock management at local, national, regional and international levels.

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) provides information on how agricultural knowledge, science and technology can be used to reduce hunger and poverty, improve rural livelihoods and human health, and facilitate equitable environmental management.

The full set of IAASTD reports includes a Global and five sub-global reports and their respective summaries for Decision Makers as well as a Synthesis Report, including an Executive Summary. The reports were accepted at an inter-governmental Plenary in Johannesburg in April 2006.

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IAASTD Issues in Brief are taken directly from the IAASTD Reports published in 2008 by Island Press.

Innovative institutional arrangements are essential to the design and adoption of ecologically and socially sustainable agricultural systems.

Business as usual is not an option: The role of institutions

Institutions are the rules, norms and procedures that guide how people within societial live, work and interact with one another. Formal institutions are written or codified rules, norms and procedures. Examples of formal institutions are the Constitution, judiciary laws, the organized market and property rights. Informal institutions are rules governed by social and behavioral norms of the family, community and society. Words ‘institution’ and ‘organization’ are sometimes used interchangeably, but organizational refers to formal institutional arrangements, such as farmer associations, government agencies and research institutes.

Agricultural knowledge, science and technology (AKST) that helps to secure productive, remunerative and resilient livelihoods, and affordable nutritious food in a socially just and ecologically sustainable way cannot be achieved through business as usual. Institutions are needed that can drive action in the face of unprecedented challenges.

Institutions are rules that aim to reduce uncertainty in human interaction

Market regulation, seed registration procedures, rights of property and the ways that agricultural research is governed are all agreements about the rules of the game. Key questions are: How have institutions shaped the development of AKST? What are their impacts on sustainable and equitable development? In this report, we examine innovative institutional arrangements and the greatest potential to drive and deliver sustainability and development goals?

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Agricultural knowledge, science and technology (AKST) that helps to secure productive, remunerative and resilient livelihoods and affordable nutri- tious food is needed in a socially sustainable manner. Technology can neither be achieved through business as usual. Institutions are needed that can drive efforts in the face of unprecedented challenges. The greatest potential to drive and deliver sustain- ability and development goals.

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