IAASTD
International Assessment of Agricultural Knowledge, Science and Technology for Development

Issues in Brief

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

Institutions are the rules, norms and procedures that guide how people within societies live, work and interact with each other. 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 society, family or community. The words 'institution' and 'organization' are sometimes used interchangeably, but organization refers to formal or informal structures, 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 for all in a socially sustainable manner cannot be achieved through business as usual. Institutions are needed that can drive efforts in the face of unprecedented challenges.

Institutions are rules that aim to reduce uncertainty in human interaction

Market regulation, seed registration procedures, food hygiene standards, trade rules, intellectual property rights 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? Which institutional arrangements have the greatest potential to drive and deliver sustainability and development goals?

Over time, rules become 'institutionalized' and manifested in the behavior of organizations. They determine the way we individually and collectively do things and how resources and incomes are distributed. The rules may be temporary or long-standing; explicit or tacit; and embedded in routines and traditions, or formally inscribed in treaties and protocols.

Institutional arrangements frame and drive action

Institutional arrangements involve explicit and implicit moral choices that reflect norms, values and interests. Science, knowledge and experience can inform institutional choices, but are rarely sufficient to shift deep-rooted preferences. If the playing field is uneven, the rules of the game are unfair, and marginalized interests and voices are not represented, then technological 'magic bullets' cannot shift the balance toward equity. The international agricultural centers under the Consultative Group on International Agricultural Research (CGIAR) are one positive example of deliberate collective choice to drive AKST toward public good goals. Yet, in part because of inappropriate or imbalanced institutional

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

arrangements, people have benefited unevenly from increased farm production; distortions in access to food remain; and gains have come at an unsustainable costs to natural resources.

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There are four key areas in which we can improve institutional arrangements in agriculture and food systems, and the generation, dissemination and adoption of AKST in order to better serve the public good:

- Innovation policies;
- Reform of commodity trade and other agricultural and food markets;
- Intellectual Property Rights (IPR); and
- Governance and management of the flow of AKST.

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 98% of the country's energy is produced by renewable 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 re-balancing 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 economic 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 well are trade and market institutions promoting sustainable and equitable development in terms of the distribution of incomes, assets, and agricultural and natural resources?

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

Agricultural exports may improve a country's balance of payments, but do not ensure food security or buffer an economy from volatile international food prices. Some developing countries with large export sectors have achieved aggregate gains in Gross Domestic Product, yet the small-scale farm sector has not necessarily benefited and in many cases has lost out. In the poorest countries the small-scale sector is a net loser under most trade liberalization scenarios. These distributional impacts call for policy differentiation, such as special and differential treatment and non-reciprocal market access under the Doha work plan.

IAASTD - An institutional innovation

- Intergovernmental process;
- Multistakeholder advisory bureau comprising government and civil society;
- Co-sponsors: FAO, GEF, UNDP, UNEP, UNESCO, World Bank and WHO;
- Multi-thematic focus;
- Multi-spatial: Global and five sub-Global assessments;
- Multi-temporal: historical-to-2050;
- Contributions from over 400 experts;
- Peer review by governments and experts;
- Approved by 58 governments.

Transitions toward reduced trade barriers and elimination of escalating tariffs for processed commodities in general would benefit developing countries. Developing countries would also benefit from reduced barriers among themselves; from deeper generalized preferential access to developed country markets for commodities of importance to rural livelihoods; and from increased public investment in local value addition.

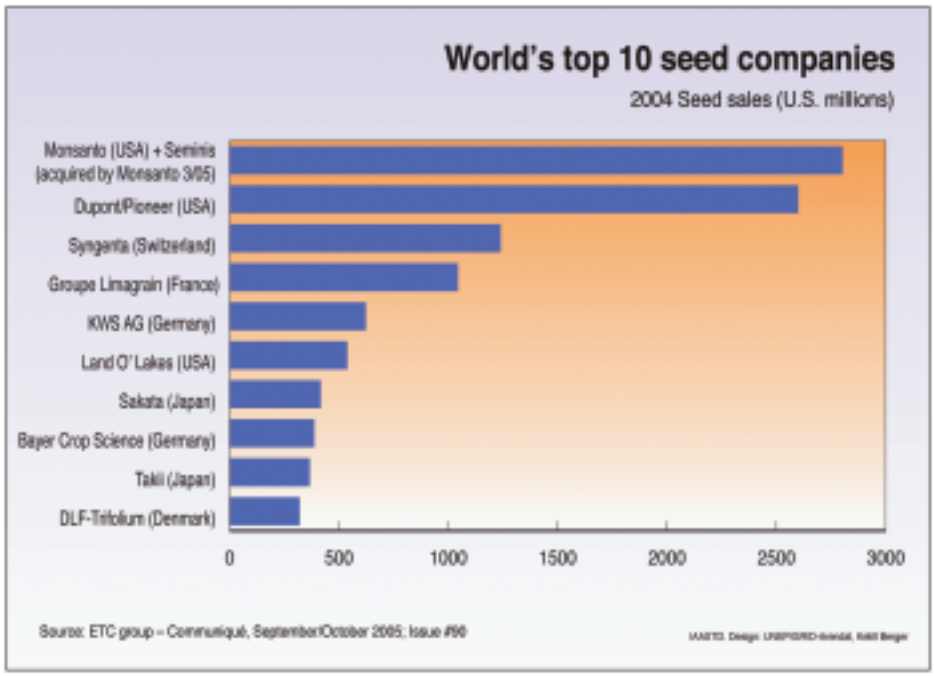
The opportunities for small-scale producers to benefit from the increasing demand for quality food by the emerging urban middle classes in developing countries are modest, unless governments take decisive action to establish appropriate institutions for procurement, food trade and retail markets that 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 strengthening research capacities in developing countries;

Industrialized countries hold 97% of patents worldwide. More than 80% of patents granted belong to individuals or corporations based in industrialized countries. The world's top five biotechnology firms control more that 95% of gene transfer patents. During 1996-2000, 75% of over 4,200 new agricultural biotech patents were granted to private firms.

measures to reduce regulatory costs so that the threshold for new entrants is lowered and competition increases; and strengthened provision for protection of indigenous and community IPR.

Intellectual property rights

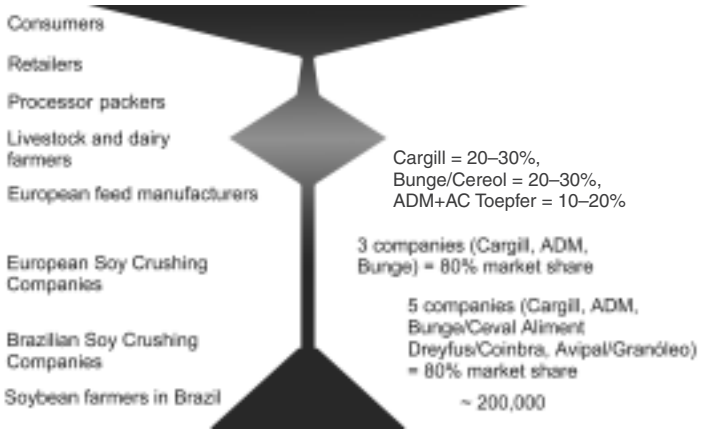
IPR rewards innovation by means of exclusionary rights on knowledge and information that can exist in the abstract or is embedded in biological processes and materials. Advocates argue that strong IPRs are a necessary incentive because of the high costs of research and development in modern genetic sciences and leading-edge biotechnologies. Others point to the complexity of the emerging IPR regime and 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.



Soybean feed "Bottleneck" from Brazil to Europe.
Source: Vorley, 2003

In the 1980s soybean production shifted from small- and medium-scale production (averaging 30 ha) in the south 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.

increasing concentration of control over seeds and other resources in a few global companies as evidence that IPRs can inhibit progress toward sustainability and development.

Governance and management of the flow of AKST

There are a number of options for increasing the effectiveness of public and private science capacity to target sustainability and development goals:

Use science more effectively

- Invest in the integration of agricultural and ecological sciences, in recognition that sustaining life is a property of an ecosystem rather than of a species, organism or DNA strand.
- Bring management and behavioral sciences into AKST decision-making to develop locally and globally effective options for innovation processes that lead toward public goods.
- Open up AKST direction-setting and governance to a wider range of stakeholders to ensure decisions are informed by diversity, values, needs and opportunities compatible with the local situation.
- Screen technology options against good practice standards.

There are usually numerous options for reaching the same goals and it is each society's right to

determine its own preferences. Some countries may agree to common approaches (i.e., to pool part of their sovereignty in food and agricultural matters in regional or global institutions), while others may prefer national or local options for achieving 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 productivity and profitability of small-scale farmers at the heart of development policy.
- Invest in the development of locally appropriate crops, seed systems and domestic and regional food markets and provide opportunities for value-addition to a range of related rural enterprises.
- Support investments important for local food security, including rural roads and storage facilities; and strengthen access and tenure to land, forest and water resources for both men and women.
- Promote and fund public investments in AKST by strengthening skills at the local level, opening access to agricultural careers to women and rural youth, and by supporting local and indigenous capacities to use locally generated AKST to manage agricultural landscapes and ecosystems.
- 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 agricultural policies that prioritize the small-scale farm sector; rural livelihoods; national food security; a public goods focused agricultural research agenda; and the sustainable management of natural resources.

Options include:

- Targeting AKST towards choices that combine productivity and protection of natural resources

Potential ways to facilitate institutional change.

What to do	How best to encourage adoption to change
Learn from the emerging institutional arrangements in the region	This would necessitate a detailed analysis of cases where the various actors in specific contexts came together and collaborated to solve particular problems or addressed new challenges. What kind of institutional changes were made? How were these sustained?
Develop a culture of learning within the organization	Learning cultivates new ways of doing things. It leads to questions such as what rules, habits and conventions need to be changed to better perform tasks. Capacity development programs can address institutional barriers. Staff can reflect on lessons learned and assess what is needed for improvement. Opportunities can be created and funded to bring about change.
Develop long-term mutually beneficial relationships	Create opportunities to bring different actors together and develop joint activities. Development of collaborative projects and the necessary resources to be mentored over a period of time. Funding can be used to facilitate the development of collaborative projects.
Improve frameworks for analysis	Analyze the patterns of interaction as a framework for planning interventions, exploring innovation systems and capacity development programs.

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 sufficient to meet domestic demand.
- 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 cross-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 environmentally, socially and economically sustainable development. 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 Intergovernmental 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 Environment Programme (UNEP), the UN Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO).

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

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