

**International Assessment of Agricultural Science and Technology for Development
(IAASTD)**

**Outline for Global Report
April 2007**

**Second Draft for Peer Review
(not for citation)**

**[IAASTD Global Report Chapter 1](#)
Context, Conceptual Framework and Sustainability Indicators**

Key Messages

1.1 Context and Goals

- 1.1.1 What is an assessment?
- 1.1.2 Global context for agriculture
- 1.1.3 Agricultural systems, food systems and the environment
- 1.1.4 Development and sustainability goals

1.2 Conceptual Framework of the IAASTD

- 1.2.1 Key concepts of the IAASTD
- 1.2.2 Direct and indirect drivers
- 1.2.3 Issues and challenges under IAASTD

1.3 Key Themes of IAASTD

- 1.3.1 Hunger, nutrition and human health
- 1.3.2 Poverty, livelihoods and economy
- 1.3.3 Environment and natural resources
- 1.3.4 Social equity

1.4 Sustainability Indicators

- 1.4.1 Indicators for IAASTD
- 1.4.2 Dealing with indicators
- 1.4.3 Indicators in the IAASTD

**[IAASTD GLOBAL REPORT CHAPTER 2](#)
HISTORICAL ANALYSIS OF THE EFFECTIVENESS OF AKST SYSTEMS
IN PROMOTING INNOVATION**

Key Messages

- 2.1 Science, knowledge, technology, and innovation
 - 2.1.1 Specificity of agriculture as an activity sector
 - 2.1.2 Knowledge processes
 - 2.1.3 Science processes
 - 2.1.4 Technology and innovation processes

2.2 Key actors, institutional arrangements and drivers

- 2.2.1 Farmers as key players
- 2.2.2 National/federal arrangements
- 2.2.3 Regional arrangements
- 2.2.4 External actors and international arrangements
- 2.2.5 Private sector arrangements
- 2.2.6 NGOs/other civil networks

2.3 AKST evolutions over time: thematic narratives

- 2.3.1 Genetic resources management
- 2.3.2 Pest management
- 2.3.3 Food safety, security, and sovereignty

2.4 Lessons from the past: Implications for future

- 2.4.1 Main lessons learned
- 2.4.2 Implications for future action

References

SECOND DRAFT **IAASTD GLOBAL REPORT** **CHAPTER 3**

IMPACTS OF AKST ON DEVELOPMENT AND SUSTAINABILITY GOALS

Key Messages

3.1 Introduction and Methodology

- 3.1.1 Background
- 3.1.2 Methodology

3.2 Assessment and Analysis

- 3.2.1 Impacts of AKST on productivity, consumption and basic production factors
- 3.2.2 Systems and approaches in support of sustainable integrated natural resources management
- 3.2.3. Livelihood improvement, empowerment and capacity building
- 3.2.4 Innovation systems, policy and stakeholder partnerships

3.3 Lessons and Challenges

GLOBAL IAASTD CHAPTER 4

OUTLOOK ON AGRICULTURAL CHANGE AND ITS DRIVERS

Key messages

4.1 Introduction – Assessment for the Future: Food for Thought

- 4.1.1 Purpose and scope of this chapter
- 4.1.2 The IAASTD conceptual framework: linking driving forces and AKST

4.2 Forward-looking Assessments

- 4.2.1 Approaches to forward-looking assessments
- 4.2.2 Recent forward-looking global assessments

4.3 Assessment of Indirect Drivers

- 4.3.1 Demographic drivers
- 4.3.2 Economics and international trade
- 4.3.3 Socio-Political drivers of alternative futures in agriculture and AKST
- 4.3.4. Science and technology
- 4.3.5 Education, culture and ethics
- 4.3.6 Biogeophysical environment

4.4 Assessment of Direct Drivers

- 4.4.1. Food consumption patterns
- 4.4.2 Direct drivers of agricultural development: natural resources

- 4.4.3 Land use and land cover change
- 4.4.4 Climate change and air pollution
- 4.4.5 Energy and development: implications for energy use in agriculture
- 4.4.6 Labor

4.5 Food Systems, Agricultural Products and Services in the Future

- 4.5.1. Characterization and future of production systems
- 4.5.2 Forecasting change in food demand and supply

4.6 Relevance for development and sustainability goals and AKST in the future

- 4.6.1 What are the development and sustainability challenges that can be addressed through AKST?
- 4.6.2. What are the conditions needed to help effect the potential of AKST to realize development and sustainability goals?

References

[IAASTD GLOBAL CHAPTER 6](#)

OPTIONS TO ENHANCE THE IMPACT OF AKST ON THE DEVELOPMENT AND SUSTAINABILITY GOALS

Key Messages

6.1 Options for improving Agricultural Systems in an Environmentally and Socially Sustainable Manner

- 6.1.1 Enhance plant breeding and crop production
- 6.1.2 Livestock production
- 6.1.3 Pest and disease management
- 6.1.4 Forestry and agroforestry systems
- 6.1.5 Fishery and aquaculture systems

6.2 Farming system improvement

- 6.2.1 Improve efficiency and productivity
- 6.2.2 Multifunctional agriculture and ecosystem services
- 6.2.3 Post harvest and food supply chain
- 6.2.4 Reduced dependence on fossil fuel energy inputs
- 6.2.5 Bioenergy

6.3 Options for Improving Nutrition and Health through AKST

- 6.3.1 Improving human health and nutrition
- 6.3.2 Increased prevalence of HIV/AIDS in relation to agricultural labor
- 6.3.3 Better use of local and traditional knowledge
- 6.3.4 Emerging human and animal diseases

6.4 Options for improving Natural Resource Management

- 6.4.1 Land and soil management
- 6.4.2 Water resources
- 6.4.3 Biodiversity and ecosystem services
- 6.4.4 Persistent chemicals

6.5 Adaptation and Mitigation to Climate Variability and Change

- 6.5.1 Adaptation to climate change
- 6.5.2 Mitigation of greenhouse gas emissions from agriculture

References

IAASTD Global Report Chapter 7

Options for Developing Capacity to Generate, Disseminate, Access, Adopt and Improve
Agricultural Knowledge, Science and Technology for Development
Key Messages

7.1 Knowledge Domains and Management Strategies

- 7.1.1 Plant genetic resources for food and agriculture
- 7.1.2 Biotechnology
- 7.1.3 Local and traditional knowledge

7.2 Improving Human Capacity

- 7.2.1 Achieving an educational continuum in agricultural education
- 7.2.2 Capacity development in the extension services
- 7.3 Mobilising and Supporting Under-Used Human Resources for AKST

7.3.1 The brain drain and brain circulation

- 7.3.2 Recognising the changing roles and responsibilities of women and men
- 7.3.3 The potential of fair trade as a capacity development tool

7.4 Farming and Human Health

7.5 Systemic Management of AKST

- 7.5.1 Feedback systems
- 7.5.2 Encouraging stakeholder communication through information and communication technologies
- 7.5.3 *Managing conflict over natural resources***

GLOBAL IAASTD CHAPTER 8

OPTIONS FOR ENABLING POLICIES AND REGULATORY ENVIRONMENTS

Key Messages

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8.2 Natural Resources and Global Environmental Change

- 8.2.1. Resources, process of change and international, national and local policies**
- 8.2.2. Reducing the impacts of climate change and the contribution of agriculture to CC**
- 8.2.3. Managing and enhancing genetic resources and agrobiodiversity**
- 8.2.4. Managing water scarcity, water quality and the distribution of water**
- 8.2.5. Managing the natural resource base of agriculture – soils, nutrients, water, pests**

8.3 Trade and Markets

- 8.3.1. Governance issues
- 8.3.2 Subsidies and dumping: the globalization of market failure
- 8.3.3 Agricultural trade and the environment
- 8.3.4 Bioenergy
- 8.3.5 Capturing value in commodity chains

8.4 Animal Health, Plant Health and Food Safety

- 8.4.1. Policy challenges and options for food safety
- 8.4.2. Policy challenges and options for animal health
- 8.4.3. Policy challenges and options for plant health
- 8.4.4. The way forward

8.5 Policy Options for Development: Property Rights and Partnerships

- 8.5.1 Public research and the generation of public goods
- 8.5.2 Multilateral negotiations on right systems on traditional knowledge and genetic resources
- 8.5.3 Impact of rights on AKST at the national and institutional levels
- 8.5.4 Right systems on natural resources: local/global

8.6 Policy and Policy Processes to Stimulate Agricultural Innovation

- 8.6.1 Description of the domain
- 8.6.2 **The dominant policy model: technology supply push and agricultural treadmill**
- 8.6.3 Supervised credit approaches
- 8.6.4 Endogenous development
- 8.6.5 Policy options for supporting innovation systems (IS)

References

IAASTD GLOBAL REPORT CHAPTER 9

AGRICULTURAL KNOWLEDGE, SCIENCE AND TECHNOLOGY: INVESTMENT AND ECONOMIC RETURNS

Key Messages

9.1 Investment and Funding Trends in AKST

- 9.1.1. Trends in agricultural R&D investments
- 9.1.2. Determinants of public and private R&D investments
- 9.1.3. Investments in other AKST components
- 9.1.4. Funding AKST in the developing world

9.2 Impacts of Investments in AKST

- 9.2.1. Conceptual framework
- 9.2.2. Economic impact assessment
- 9.2.3. Limitations of impact measures
- 9.2.4. Empirical evidence
- 9.2.5. Environmental impacts of agricultural R&D investments
- 9.2.6. Health impacts of agricultural R&D investments
- 9.2.7. Incorporating non-market impacts into economic analysis
- 9.2.8. Spillover Effects
- 9.2.9. Relative performance of public sector agricultural R&D investments

9.3 Governance of AKST Investments: Towards a Conceptual Framework

- 9.3.1. Demand for improved governance
- 9.3.2. Defining and judging governance in relation to the investments for AKST
- 9.3.3. Analyzing the experience of governing AKST investments
- 9.3.4. Governance of AKST and the changes in larger institutional environment
- 9.3.5. Outline of the future roles of governance and institutional structure

9.4 Investment options

References