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Annex 2 CWANA Sub-Global Assessment

Chapter 1 Setting the Scene: CWANA

- 1.1 Context of CWANA (Diversity)**
- 1.2 Agricultural production systems**
- 1.3 Key issues**
- 1.4 What is the status of AKST development and application in CWANA region in relation to the above identified key issues?**

Chapter 2 Historical and current perspectives of AKST

- 2.1 Natural resources and agricultural infrastructure**
- 2.2 Policies and regulations**
- 2.3 Public and private sector investment in AKST**
- 2.4 Economic and market evolution**
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- 2.6 AKST and its impact on development and sustainability goals**

Chapter 3 Plausible futures

- 3.1 Drivers affecting agricultural production systems in CWANA**
- 3.2 Development of storylines**
- 3.3 Presentation of the outputs for scenarios**

Chapter 4 Looking forward: Policies, institutions and other enabling factors in the role of AKST

- 4.1 Impact of policies**
- 4.2 Impact of institutional arrangements**
- 4.3 Other enabling factors**

Chapter 5 Looking forward: Role of AKST in meeting development and sustainability goals¹

- 5.1 AKST and objectives**
- 5.2 AKST system options for future**
- 5.3 Gaps and uncertainties in the AKST system**

Chapter 1 Setting the scene

1.1 Context of CWANA

- 1.1.1 Identification of CWANA Region including geography, climate, ecosystems, biodiversity, and other environmental issues, including land degradation and natural disasters**
- 1.1.2 Geopolitics (including conflicts such as water disputes)**
- 1.1.3 Well-being**
 - Hunger, nutrition and human health
 - Poverty and livelihoods
 - Social equity
 - Environment

¹ Development and sustainability goals for Assessment: improved nutrition, human health and livelihoods; decreased poverty and hunger; increased social and environmental sustainability.

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1.2 Agricultural production systems

What are the agricultural production systems in CWANA region and how are they organized? Authors must deal with, among others, the following:

- Identification of current production systems and importance of agriculture in CWANA (e.g., contribution to the GDP, productivity)
- Transitional dynamics of production systems
- Identification of supporting services, including extension, inputs, credit and marketing

1.3 Key issues

What are the key issues in the context of agricultural development and the problems of hunger, poverty, livelihoods and environment in the CWANA region? Authors must deal with, among others, the following issues:

- Natural resources
- Population growth and demography
- Water scarcity and its implications for agricultural production systems (e.g., crops, fisheries, livestock, forests)
- Climate change
- Land and water access, tenure and management
- Infrastructures and financing for agricultural development
- Local knowledge, sciences and technologies
- Social equity and gender
- Human capacity
- Markets and policies
- Access and use of agro-biodiversity (wetland and ranch lands)

1.4. What is the status of AKST development and application in CWANA region in relation to the above identified key issues?

Chapter 2 Historical and current perspectives of AKST

Authors must review the situation in the colonial countries, communist/ socialist countries and other countries, as well as in the contexts of green revolution/ gene revolution. Authors must give examples from relevant countries as well as specific political eras.

2.1 Natural Resources and Agricultural Infrastructure

How have the development and application of AKST in CWANA region affected or responded to, among others, the following:

- Cropping patterns and productivity, etc.
- Community organizations, social networks, solidarity
- Water resource development and management
- Infrastructure
- Land tenure, including agrarian reform
- Agro-biodiversity
- Land use and land cover

2.2 Policies and Regulations

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How have the development and application of AKST affected and responded to, among others, the following policies and regulations?

- Property rights including land and water rights
- Pricing policies
- Trade policy (international agreements, WTO etc.)
- Intellectual property rights
- Subsidies
- Environmental policies
- Water management policy
- Land management policy
- Science and technology policy

2.3 History of public and private sector investment in AKST

How have the nature (e.g., research priorities, etc.), objectives (e.g., import substitution, increased exports, fight against poverty or hunger, etc.) and extent (e.g., % of GDP allocated etc.) of public and private sector involvement in the development and application of AKST changed/evolved overtime in different parts of CWANA region?

2.3.1 Public sector involvement in AKST development and application

- Proportion of total budget
- Development vs. non-development expenditure
- Human resource vs. operational budget
- Research priorities
- Application of AKST

2.3.2 Private sector involvement in AKST development and application

- Proportion of total AKST investment
- Human resource development
- Research priorities
- Application of AKST
- Private sector investment in input markets (e.g., seeds, fertilizers, pesticides)
- Private sector investment in output markets (e.g., market information)

2.3.3 Analysis of returns to investments (public/private research and extension/application)

2.4 Economic and Market evolution

How have the development and application of AKST affected and responded to market evolution in the CWANA region?

- Inputs markets
- Quality of rural life/ per capita income growth
- Product markets
- Agriculture market shares of CWANA in the global and regional markets
- Changing lifestyles and consumer preferences and demands
- Credit markets
- Local markets

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2.5 Technology adoption and transfer

How have the development and application of AKST affected or responded to the processes of technology transfer and application?

- Socio-economic evolution
- Local knowledge
- Research, technology development and technology adoption/ application policy
- Human capacity
- Water related technologies
- Financial support mechanisms

2.6 AKST and its Impact on Development Goals

How have the development and application AKST in the CWANA region affected or responded to the situation of:

- Hunger,
- Nutrition,
- Human health,
- Poverty,
- Social equity and sustainability,
- Environmental and social sustainability.

Authors must give examples/ case studies from all the constituent regions in CWANA.

Chapter 3 Plausible futures

This chapter must provide an analysis of plausible future scenarios with a focus on the different ways AKST is developed and applied, and the relevant impacts on the situation of hunger, nutrition, poverty, social equity and environment. These scenarios are to be based on a very good understanding of direct and indirect drivers, as identified through historical analysis, and how interventions could be made to impact outcomes in different scenarios.

- 3.1 How are the direct drivers (e.g. natural resources, labour, climate change, etc.) and indirect drivers (e.g. economy, demography, education, etc.) affecting agricultural production systems in CWANA?**
- 3.2 How are the interactions within the CWANA region and across regions impacting the agricultural production systems, and with what implications for hunger, poverty, environment etc?**
- 3.3 Development of storylines**
- 3.4 Development and presentation of outputs for different scenarios.**

Chapter 4 Looking forward: Policies, institutions and other enabling factors for AKST

This chapter will assess the historical and current capability and appropriateness of different AKST systems to deal with the needs and interests of different stakeholders (rural/urban, farmer/consumer, farm/laborer/processor, men/women) in the context of addressing the development and sustainability goals. The chapter will explore policy development, policy implementation (i.e. national, bi-lateral, regional and global) and institutional arrangements (i.e. local, national, regional, and international cooperation), as well as other enabling factors for effective role of AKST in the future.

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How policies, institutions and other factors can influence AKST development and application in the CWANA region?

4.1 Impacts of policies under different scenarios

For example:

- Pricing policies (including price protection and subsidies)
- Investment and financing
- Research priorities
- IPR and trade

4.2 Impacts of institutional arrangements under different scenarios

- Global/regional Cooperation and International Efforts (International Monetary Fund, UN Framework Convention on Climate Change, etc.)
- Regional (Arid Center for Studies of Arid Zones and Dry Lands, etc.)
- National (public, private, etc.)
- Local and community
- Technology generation, transfer and adaptation

4.3 Analysis of other enabling factors under different scenarios

4.3.1 Availability, accessibility and management of resources

- Natural resources (e.g. land, water, biodiversity, etc.),
- Human capacity, and
- Infrastructure.

4.3.2 Governance

- Policies and regulations
- Transparency and accountability
- Empowerment, democracy and participation

4.3.3 Social factors

- Livelihood and equity
- Gender
- Population pressure (including urbanization and migration)
- Labor (migration, seasonal mobility, remittances)
- Education
- Conflicts management.

4.3.4. Economic factors

- Markets
- Regulatory regimes (e.g. IPR, bio-safety, food safety)

4.3.5 Role of government, international organizations, private and informal sectors

- Government
- International organizations
- Private sector, agro-industry

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- Informal sector
- Local community

Chapter 5 Looking forward: Role of AKST in meeting development and sustainability goals

This chapter will discuss AKST options and roles in dealing with uncertainties and to meet the development and sustainability goals in the future in the CWANA region. It should include discussions on water related concerns as well as conflict management.

5.1 AKST and development and sustainability goals

- Hunger, nutrition and human health
- Poverty and livelihoods
- Environmental sustainability
- Social sustainability, e.g., equity and gender

5.2 AKST options for future

- Development pathways
- Technology options
- Conservation of local knowledge
- New technologies
- Environmental impact & food safety

5.3 Gaps and uncertainties in the AKST system

- Key gaps in system
- Managing uncertainties