Strategy for the Staple Crops Programme

Enhanced Sustainable Productivity, Value Added and Competitiveness in ECA

2008–2014

January 2008

Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)

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PREFACE

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) was established in September 1994. It comprises 10 member countries: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda.

ASARECA is a sub-regional not-for-profit organisation whose mission is:
To enhance regional collective action in agricultural research for development, extension, training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa.

This mission is a commitment to overcome poverty and hunger in the ECA region. ASARECA sees improved delivery and impact of scientific knowledge, policy options and technologies as a powerful instrument to drive the sub-region towards meeting the Comprehensive African Agricultural Development Programme (CAADP) which is the agricultural agenda of the New Partnership for Africa's Development (NEPAD) and the Millennium Development Goals (MDGs).

The 10 ASARECA countries have been and are currently investing in agricultural research, extension, education, and training. While ASARECA mobilises operational finances for sub-regionally planned agricultural innovation activities, the partner national agricultural research systems (NARS) contribute their infrastructure, personnel and some funding towards the sustainable implementation of the programmes. One of the goals of CAADP is for each country in Africa to increase its share of the national budget for agriculture to 10%. The Heads of State of the 10 ASARECA countries, along with all their counterparts in Africa, have committed themselves to achieving this. The support provided to ASARECA by its development partners adds value to ongoing agricultural development efforts in the sub-region to achieve the goals of CAADP.

ASARECA has seven new programmes. These are:

1. Staple Crops
2. High Value and Non-Staple Crops
3. Livestock and Fisheries
4. Agro-Biodiversity and Biotechnology
5. Natural Resource Management and Biodiversity
6. Policy Analysis and Advocacy Programme
7. Knowledge Management and Technology Upscaling

Over the past two years, ASARECA has reviewed the past performance, current status and future projections of agricultural performance in Eastern and Central Africa and laid out strategic directions and priorities for ASARECA (2007–2016). The Association also laid out the Strategic Directions and Priorities for Agricultural Development in the region in the context of the CAADP and the MDGs.

ASARECA serves as a forum for promoting regional agricultural research and strengthening relations between NARS in ECA with each other and with the Consultative Group for International Agricultural Research (CGIAR). ASARECA has expanded its mandate to link agricultural research to the political dialogue through the Common Market for Eastern and Southern Africa (COMESA), the Forum for Agricultural Research in Africa (FARA) and AU/NEPAD. ASARECA monitors political and institutional change in the global research environment and provides representation in such fora to its member countries.

ASARECA adds value to the work of NARS in the sub-region through:

- The identification of shared goals and the promotion of economies of scale and scope through collaboration, specialisation and sharing of results.
- The identification of sub-regional public goods that would be under-produced in the absence of shared goals and a regional mechanism.
- Sharing of knowledge and experiences with institutional innovation for more effective agricultural research for development (AR4D), extension and agricultural training and education.

Central to vision and mission of ASARECA is the recognition of the value of regional collaboration and the need for regional collective action among member countries and their partners. Also central to ASARECA's vision and mission is the notion that agricultural research, convened and facilitated by ASARECA, furthers development aims such as broad-based economic growth, poverty eradication and improved livelihood.

What is presented in this document is the strategy and priorities developed for the ASARECA Staple Crops Programme through collective action of all the ASARECA member national agricultural research institutes and all major ASARECA stakeholders. I would like to thank Dr Fina Opio, the Staple Crops Programme Manager, and all our stakeholders for having worked hard and enabled ASARECA to define its future direction and priorities in the context of the Sub-regional Staple Crops Programme.

It is also my great pleasure to inform all our partners that this strategy document has been approved by the ASARECA Board of Directors.

Seyfu Ketema
Executive Director, ASARECA

ACRONYMS

AHI	African Highlands Initiative
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
AR4D	Agricultural research for development
ARINENA	Association of Agricultural Research Institutes in the Near East and North Africa
BARNESA	Banana Research Network for Eastern and Southern Africa Africa
CAADP	Comprehensive Agriculture Development Programme
CGIAR	Consultative Group on International Agricultural Research
CGS	Competitive Grants Scheme
CIMMYT	International Maize and Wheat Improvement Centre (Centro Internacional de Mejoramiento de Maíz y Trigo)
CIP	International Potato Centre (Centro Internacional de la Papa)
COMESA	Common Market for East and southern Africa
CORAF/WECARD	Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/The West and Central African Council for Agricultural Research and Development
CORNET	Coffee Research Network
DRC	Democratic Republic of Congo
EARRNET	Eastern Africa Regional Root Crops Network focusing on cassava
ECA	East and Central Africa
ECABIO	Eastern and Central Africa Biotechnology and Biosafety Network
ECABREN	Eastern and Central Africa Bean Research Network
ECAMAW	Eastern and Central Africa Maize and Wheat Network
ECAPAPA	Eastern and Central Africa Programme for Agricultural Policy Analysis
ECARRN	Eastern and Central Africa Regional Rice Research Network
ECARSAM	Eastern and Central Africa Regional Sorghum and Millet Network
FAAP	Framework for Africa Agricultural Productivity
FARA	Forum for Agricultural Research in Africa
GIS	Geographic information system
GDP	Gross domestic product
ha	Hectare(s)
IAR4D	Integrated Agricultural Research for Development
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
INIBAP	International Network for the Improvement of Banana and Plantain

IPGRI	Bioversity International (formerly International Plant Genetic Resources Institute)
KARI	Kenya Agricultural Research Institute
M&E	Monitoring and evaluation
MDG	Millennium Development Goals
NARES	National agricultural research and extension system
NARI	National Agricultural Research Institute
NARS	National agricultural research systems
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NPP	Networks, Programmes and Projects
PRAPACE	Potato and Sweet Potato Research Network
REC	Regional economic community
SADC-FANR	Southern Africa Development Community-Food, Agriculture and Natural Resource Directorate
SRO	Sub-regional research organizations
SWMNET	Soil and Water Management Network
t	Metric tonnes
TAT	Technical Advisory Team
WARDA	The Africa Rice Center (formerly West African Rice Development Association)

EXECUTIVE SUMMARY

THE STAPLE CROPS PROGRAMME, FIVE-YEAR STRATEGIC PLAN

Enhanced Sustainable Productivity, Value Added and Competitiveness of the ECA Sub-regional Agricultural System

The Staple Crops Programme is one of the new programmes of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). The programme was created as a result of restructuring processes within ASARECA aimed at strengthening its vision of impact as a regional body that promotes regional collective action in agricultural research for development (AR4D). The Staple Crops Programme was created from a merger of six networks programmes and projects: ECARRN, the rice network; ECAMAW, the maize and wheat network; ECARSAM, the Sorghum and Millets network; BARNESA, the banana network; EARRNET, the cassava network; and PRAPACE, the potato and sweet potato network.

Operations of the Staple Crops Programme will be guided by four strategic objectives which represent the vision of the impact that the Programme would like to achieve. These strategic objectives embrace central thrusts and performance areas which the Programme will pursue to contribute to ASARECA's goal, purpose and mission. The strategic objectives also provide the strategic orientation and positioning of the Staple Crops Programme and demonstrate commitment to achieve impacts in the four areas through a range of strategies (Box 1).

Programme Thematic Areas

The Programme will implement these strategic objectives using three thematic areas. The thematic areas represent impact thrust areas where ASARECA has comparative regional advantage to produce regional public goods for East and Central Africa (ECA). The thematic areas are:

1. **Thematic area one:** Identification and management of information and technology of regional importance on staple crops. This theme will focus on knowledge management including the generation and management of information, knowledge, technologies and their utilization and learning.
2. **Thematic area two:** Addressing regional threats to sustainable improvement in the productivity and competitiveness of staple crops in ECA. This theme seeks to address the regional threats to staple crops production in ECA by putting in place frameworks for response, and strategically conducting agricultural research for development (AR4D) to address the region's agricultural production threats.

Box 1: Strategic Objectives of the Staple Crops Programme

Strategic Objective 1: Strategic technology generation platforms developed and strengthened to efficiently and effectively conduct impact oriented R4D for the region. The objective seeks to address the generation of regional public goods that address regional agricultural threats. Specialized networks will be developed and used to generate technologies and products for the wider benefits of the region.

Strategic Objective 2: Shared research and training facilities and capacities rationalized for enhanced economies of scope and scale. This objective seeks to address the challenge faced by the national agricultural research and extension system (NARES) in production of impact oriented products in the required frequencies, quality and quantities against a backdrop of limited resources (human resources, infrastructure and funds).

Strategic Objective 3: Information management for marketing, learning and advocacy that contributes to agricultural policy and development practice.
This objective seeks to address the issue of communication and marketing as well as learning between the programme and its stakeholders.

Strategic Objective 4: Enhanced productivity, regional value addition and improved access to regional and global markets of staple crops in East and Central Africa (ECA). This objective seeks to enhance the development of regional undertakings, especially the development of regional value chains. It also aims to support management of spillover effects.

3. **Thematic area three:** Enhancing productivity, value addition and improving access to regional and global markets of staple crops in ECA. This thematic area aims at enhancing development of regional undertakings that will support regional trade and value chains, spillover management of lessons, policy harmonization and capacity building.

The outcomes of successful implementation of programme thematic areas will generate results which reflect ASARECA's comparative advantage; the results will be delivered through networking support to the national agricultural research and extension systems (NARES) of ECA. The results are:

1. Generation and uptake of demand driven technologies and innovations for staple crops facilitated.
2. Policy analysis and harmonisation processes for enhancing the performance of staple crops in ECA facilitated.
3. Capacity for stakeholders to implement research on staple crops using IAR4D approach strengthened.
4. Availability of knowledge and information on technologies and innovations for staple crops to uptake pathways enhanced.

The Staple Crops Programme is committed to the supremacy of excellence in

everything that it does. Through this programme ASARECA will therefore implement some of its networking and support functions such as advocacy, strategic partnerships and capacity strengthening.

In the design of all interventions the Programme will aim at filling programmatic gaps in areas where ASARECA has regional comparative advantage: institutional innovation including ASARECA's role in the NEPAD/CAADP–REC–SRO–NARS (New Partnership for Africa's Development/Comprehensive Africa Agriculture Development Programme–regional economic community–sub-regional organization–national agricultural research system) nexus; promoting regional collective action that facilitates the production of sub-regional public goods, especially transboundary problems of diseases and pests; facilitating positive spillovers among members; and engaging in conscious acts of solidarity (e.g. in support of smaller NARS or in post-conflict rehabilitation.

The policy direction of the Programme will be guided by the ASARECA Board while management will be done by the Secretariat. Thus through the Staple Crops Programme ASARECA is taking bold steps to stimulate growth of the agricultural sector as an engine for economic development that addresses livelihood strategies of the vast majority of people in ECA.

CHAPTER 1

1. BACKGROUND

1.1. Origin and Evolution of ASARECA

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a non-political sub-regional agricultural research organization (SRO). It serves the national agricultural research and extension systems (NARES) of 10 countries: Burundi, Democratic Republic of Congo (DRC), Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda. ASARECA aims to strengthen and increase the efficiency of agricultural research in the region so as to facilitate economic growth, food security and export competitiveness through productive and sustainable agriculture. The mission of ASARECA is to: *To enhance regional collective action in agricultural research for development, extension, training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa*.

The Goal

Enhanced sustainable productivity, value added and competitiveness of the subregional agricultural system.

Purpose

Enhanced utilisation of agricultural research and development innovations in eastern and central Africa.

The ASARECA results are thus:

1. Performance driven gender sensitive governance and management structures and systems established and operational.
2. Generation and uptake of demand driven agricultural technologies and innovations facilitated.
3. Policy options for enhancing the performance of the agricultural sector in the ECA sub-region facilitated.
4. Capacity for gender responsive agricultural research for development in the ECA region strengthened.
5. Availability of information on agricultural innovation enhanced.

1.2. The Context of the ASARECA Strategy`

Africa, through the New Partnership for Africa's Development (NEPAD) initiative of the African Union (AU), has set development targets and aspirations to spur the development of the continent. NEPAD recognizes the need to strengthen the livelihood strategies of the vast majority of the continent's rural poor, many of whom depend on

agriculture (NEPAD, 2005). The NEPAD aspirations are embodied in the agricultural sector strategic development programme, the Comprehensive Africa Agriculture Development Programme (CAADP). The CAADP objectives will be achieved using four pillars:

- Pillar 1: Land and water management
- Pillar 2: Rural infrastructure and trade-related capacities for market access
- Pillar 3: Increasing food supply and reducing hunger
- Pillar 4: Agricultural research, technology dissemination and adoption

The implementation of Pillar 4 is considered pivotal, and is being implemented at continental (regional) level by the Forum for Agricultural Research in Africa (FARA), at sub-regional level by SROs, and at national level by NARES. The implementation of Pillar 4 is guided by the Framework for African Agricultural Productivity (FAAP) which aims at:

1. Strengthening capacities of African agricultural technology systems and increasing investments by African governments in technology development and dissemination.
2. Fostering and supporting needed reforms in African research and extension institutions and in market and agricultural policy environments.
3. Linking national, sub-regional and regional programmes/networks with strong international partnerships.

In order to mainstream its agenda into CAADP within the FAAP guidelines and the Millennium Development Goals (MDGs) ASARECA has reviewed its strategic plan (2005–2015) and operational plan (2006–2016). The review process is guided by a study conducted by the International Food Policy Research Institute (IFPRI). The study uses a regional multi-market agricultural sector and global information system (GIS) based approaches to model policy options for agricultural productivity in East and Central Africa (ECA). Based on the IFPRI study, ASARECA has to realign its agenda to support agricultural development through what is called a “business unusual approach”.

Accordingly, the ASARECA strategy seeks to enhance productivity through innovative approaches that assure:

1. Development of shared goals and the promotion of economies of scale and scope through collaboration, specialization and sharing of results.
2. Generation of sub-regional public goods that are under-produced in the absence of shared goals and a regional mechanism for sharing knowledge and experiences for more effective agricultural research for development (AR4D), extension and agricultural education in ECA.

These issues are the basis for ASARECA’s transformation from a network based organization to a programme based organization with a new mission that includes

education and extension besides the traditional research it has always supported.

1.3. The Genesis of Networks and Experiences

The ASARECA Networks Programmes and Projects (NPPs) associated with the Staple Crops Programme operated for varying periods ranging from 2 years to about 10 years in the previous structure of the Association. The lessons and experiences of these NPPS are presented below. They represent areas upon which the Staple Crops Programme may build.

1. Shared regional agricultural research for development (AR4D) vision and mission. Through these NPPs a regional platform for development of shared visions to address regional agricultural development programmes was developed. This is a positive development because it provides lessons needed to generate agenda for managing transboundary related research domains in ECA.
2. Marshalling regional resources for AR4D. Through the NPPs, resources for undertaking AR4D in the region have been marshalled. Specifically, human resources have been networked together as teams to produce public goods. This process also supported the shared use of research infrastructure for research.
3. Accessing global AR4D products and linkage to other knowledge centres. Whereas some of the networks evolved from activities initiated by the Consultative Group on International Agricultural Research (CGIAR), others were developed by ASARECA. PRAPACE (Potato and Sweet Potato Research Network), ECARRN (Eastern and Central Africa Regional Rice Research Network), ECAMAW (Eastern and Central Maize and Wheat Network), ECARSAM (Eastern and Central Africa Regional Sorghum and Millet Network), BARNESA (Banana Research Network for Eastern and Southern Africa), and EARRNET (Eastern Africa Regional Root Crops Network focusing on cassava) were all closely linked to CGIAR and other international knowledge centres. These other centres included the International Potato Centre (CIP), The Africa Rice Center (WARDA), the International Maize and Wheat Improvement Centre (CIMMYT), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Network for the Improvement of Banana and Plantain/ Bioversity International (INIBAB/IPGRI) and the International Institute of Tropical Agriculture (IITA). The CGIAR system will remain key partners to produce global and regional public goods.
4. Capacity building. All networks had capacity building activities inbuilt in their strategic plans. Examples of capacity building activities include:
    - Competencies in experimental design and management, statistical analyses, disease and pest management, proposal development, project management and impact assessment.
    - Capacity of extension workers, farmer groups and processors.
    - New human resources trained (technicians, MSc and PhD) through co-funding and attachments.
5. Strategic activities and interventions. The networks undertook strategic interventions to support the national agricultural research systems (NARS) in collaboration with other regional and global actors. For example, EARRNET

undertook value chain analyses to support holistic AR4D activities.

6. Development and promotion of appropriate technologies. All networks had extensive germplasm exchange and development programmes at regional level. This supported NARS to access material that would have otherwise been difficult to access and/or develop. The CGIAR system and other knowledge centres were involved in the process. In addition, the networks developed technology transfer programmes to promote adoption and use of technologies. The networks supported public promotional/awareness events by producing relevant media literature, participation in shows and international conferences.
7. Regional platforms for AR4D. The networks developed regional AR4D networks to support development of public goods for the region. All networks developed regional teams to undertake AR4D activities. Examples include regional task forces to address emergent diseases and epidemics (e.g. cassava mosaic disease, cassava brown streak disease).
8. Research into use. All networks supported ASARECA-member NARS to build capacity to engage in putting research into use. Special attention was paid to capacities needed in various NARS for applying the Integrated Agricultural Research for Development (IAR4D) approach.

1.4. From Networks to Programmes

Through an extensive and intensive consultative and participatory process, an Operational Plan (2008–2014) was developed for ASARECA. The five key principles that underpin the plan are:

1. Delivery. The whole rationale behind the design of the Operational Plan is to dramatically improve the delivery of ASARECA's outputs and increase the impact of its regional agricultural research projects. This will require a new emphasis on performance-based decisions relating to funding, contracts and personnel.
2. Subsidiarity. Wherever and whenever possible authority, responsibility and accountability will be delegated to the lowest level at which it is most effective.
3. Continuity. Current and pipeline agriculture research supported by ASARECA will not be compromised by the change process, and will continue to form a part of the Operational Plan as it delivers ASARECA's strategic objectives.
4. Transparency. Stakeholder involvement in the Operational Plan will be participatory and consultative. Information/communication systems will be established to keep all informed.
5. Conservation. Much has been learned during the past 10 years of ASARECA's development and, although there is now a need for change, there are systems, mechanisms and processes that work well. These should not be lost and will be incorporated into the change process to build a stronger and more effective organization.

To ensure efficiency and effectiveness, ASARECA undertook to review its strategic and operational plans. The review process created 7 programmatic areas from 17

commodity networks. These programmes are meant to catalyse national and regional distribution of gains from investments in commodity sub-sectors and development domains. The programmatic approach also provides for identification of priority sub-regional research domains that will promote achievement of up to 50% spillover gains to neighbouring countries.

Out of 17 NPPs, 7 programmes have been developed (Table 1) to assure:

- Contribution to the delivery of ASARECA results
- Pooling resources to improve impact orientation
- ASARECA priorities are addressed
- Manageable grouping

Table 1: Linkages between new ASARECA programmes and NPPs

NEW ASARECA PROGRAMMES						
1. Staple Crops	**2. Non-Staple Crops**	**3. Livestock & Fish**	**4. Agro Biodiversity & Biotechnology**	**5. NRM and Forestry**	**6. Policy & Advocacy**	**7. Capacity, Uptake, Info, IAR4D**
NETWORKS, PROGRAMMES AND PROJECTS (NPPs) FROM WHICH PROGRAMMES WERE MADE UP						
▪ BARNESA ▪ EARRNET ▪ ECAMAW ▪ ECARRN ▪ ECARSAM ▪ PRAPACE	▪ CORNET ▪ ECABREN	▪ A-AARNET	▪ BIO-TECH ▪ EAPGREN	▪ TOFNET ▪ SWMnet ▪ AHI	▪ FOOD NET ▪ ECAP APA	▪ TUUSI ▪ RAIN

A-AARNET = ASARECA Animal Agriculture Research Network; AHI = African Highlands Initiative; ECABIO = Eastern and Central Africa Biotechnology and Biosafety Network; CORNET = Coffee Research Network; ECABREN = Eastern and Central Africa Bean Research Network; EAPGREN = East African Plant Genetic Resources Network; ECAPAPA = East and Central African Programme for Agricultural Policy Analysis; FOODNET = Post-harvest Processing Network; NRM = natural resource management; RAIN = Regional Agricultural Information Network; SWMnet = Soil and Water Management Network; TOFNET = Trees on-Farm Network.

CHAPTER TWO

2. RATIONALE FOR THE STAPLE CROPS PROGRAMME

2.1. The Socio-economic Context of the Staple Crops Programme in ECA

The Staple Crops Programme in ASARECA is responsible for AR4D on the following nine commodities: banana, cassava, potato, sweet potato, maize, sorghum, millet, rice and wheat. These staple crops contribute to the socio-economic well-being of the people in the ECA region in several ways. The crops provide raw materials for the local industries (agro-processing); help alleviate poverty; contribute to improved nutrition; contribute to natural resource management; and provide employment. There is also some cross-border trade and to a limited extent, export of the commodities to markets outside the ECA region. Most of the staple crops rank high in food security and/or income generation.

The 10 countries that make up the ECA region have a total population of about 312 million (FAOSTAT) people and over the past 6 years the annual population growth rates amongst member countries have been between 2.0% and 4.5%. Whereas agricultural land available per head is about 1 ha, the actual arable land per head is only 0.17 ha. Thus, a household comprising 4–6 members has a piece of arable land of 0.7–1.0 ha. The relatively limited land available for crop production implies that strategies for increasing production will have to focus on productivity enhancement.

Despite the lack of reliable data, it is generally estimated that over 25 million smallholder households are involved in the production of staple crops in ECA. This is based on the assumption that the 225 million rural people in the ASARECA member countries make up about 40–45 million households. Out of these at least 50% of the populations are involved in the production of these 10 crops, with women providing more than 65% of the labour force. Since these staple crops are typically smallholder crops, increasing their production and utilization is often considered a means of improving incomes and food security among the poorer segments of the rural population. Despite the importance of staple crops, on-farm yields are quite low, about 20–33% of on-station yields, as shown in Figures 1 and 2.

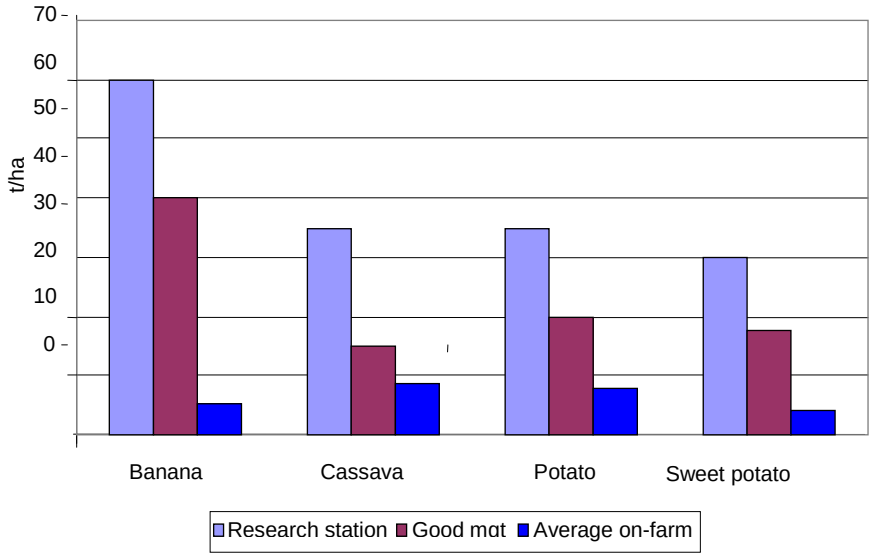

Figure 1: Comparison of yields for plantain, roots and tubers under different management.

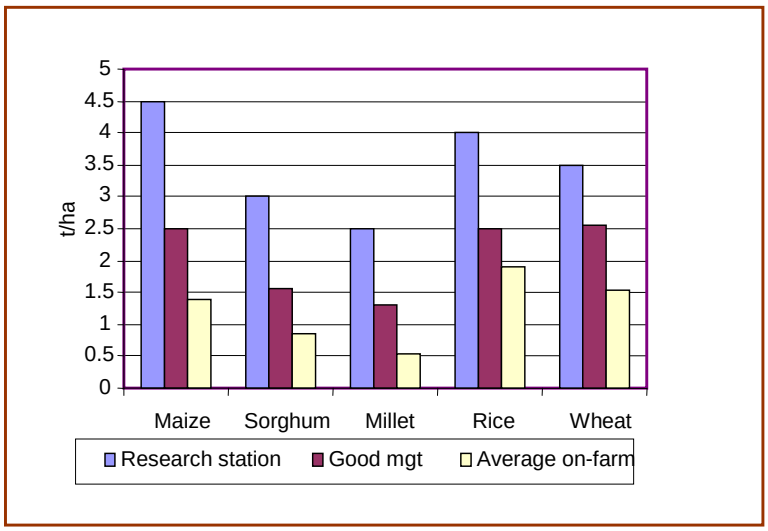

Figure 2: Comparison of yields for cereals and pulses under different management regimes.

An analysis of the area and output of various staple crops grown in ECA shows an increase in both the area and output of staples (Figure 3). However, the increased production is attributed to increase in area rather than an increase in productivity. Consumption and utilization data show that quite a significant proportion of the staple crops that are produced in the region are consumed at the farm level, with some being sold mainly in rural markets.

A smaller portion is utilized as seed, while even smaller amounts are utilized as animal feed. In good years there are substantial amounts exported, while in times of low production, there is a high prevalence of imports.

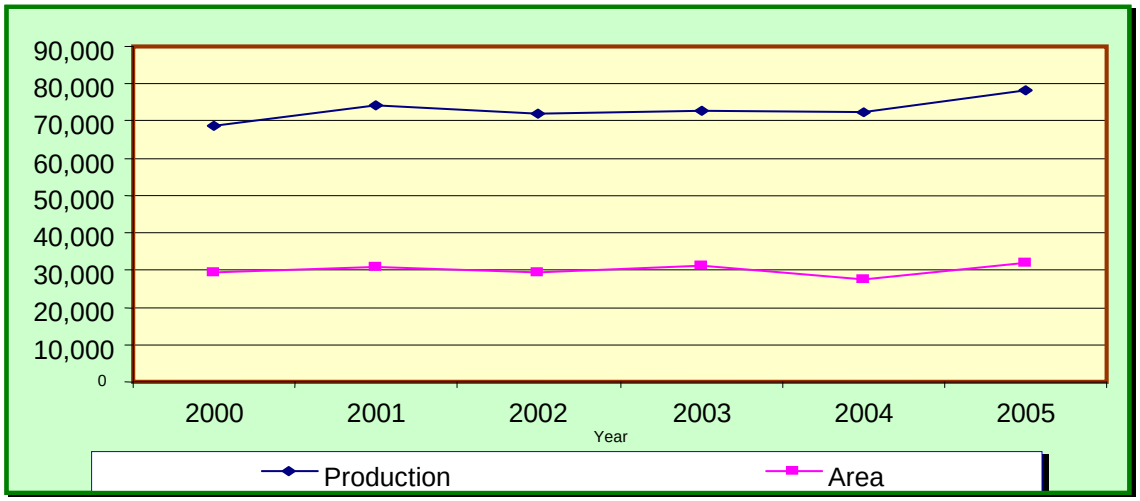

Figure 3: Production and area under staple crops in ASARECA countries.

Overall, the ECA region has had very limited trade both within and outside the region. This could be attributed to a number of factors including trade barriers, inefficient infrastructure and inefficiencies along the commodity supply chains that make trading, even outside one's country, unprofitable.

Although the results in Figure 4 show a supply–demand gap, a trend analysis reveals that at current growth rates (both population and crop output), demand will surpass output in the medium term. More importantly, bearing in mind the cyclical fluctuations that characterize subsistence agriculture, the possibility that ASARECA member countries will be food deficient in some years is not far-fetched.

In the ECA region, there is a limited range of processed products from staple crops. However, the entry into the market of the urban fast food restaurant and multinational fast food companies has increased food processing. Fast food restaurants, tourists, institutions and urban consumers appear to be the principal sources of growth for this new market segment.

Figure 4: Staple crops availability and consumption gap, 2000–2005.

2.2. Major Regional Challenges

Sub-Saharan Africa in general and ECA in particular recognize the pivotal role that agriculture plays in stimulating economic growth. In five of the ASARECA member countries (Burundi, DRC, Ethiopia, Sudan and Tanzania) agricultural gross domestic product (GDP) contributes more than 50% to total GDP (Omamo et al., 2006). It is only in Eritrea, Kenya, Madagascar, and Uganda that the contribution of agricultural GDP is below 30%. Up to 70% of the cropland in nearly 70% of ECA cropland
(i.e. cultivated or cropped) is found in the areas with high and medium agricultural potential. This implies that stimulation of agricultural growth has the highest potential to address poverty and food and nutrition insecurity. The region, nevertheless, faces a number of challenges that need to be addressed if crop productivity is to be improved. The challenges include:

1. How to develop and implement AR4D interventions that add value to national interventions and have spillover effects to the farming community in ECA. Countries in ECA share constraints and opportunities not delimited by commodity lines. The vast majority of farmers are still subsistence and therefore will likely use the same livelihood strategies to address similar production problems.
2. How to generate and catalyse collective action to address regional concerns. This challenge addresses the issues of developing mechanisms to respond to emerging and emergency issues. It also addresses the issues of managing transboundary stress, e.g. climate change and pest and disease epidemics.
3. How to design and implement strategies for AR4D investments on selected staples that will enhance regional spillover and the ASARECA results. While national priorities vary, some staples could catalyse

spillover effects to other commodities and sectors of the economy. This challenge also includes design and delivery of outputs that collectively influence positive impact by programme.

4. How to harness the limited resources in the region for rationalized resource use. Strategic cross-cutting themes can be developed to enhance effectiveness and efficiency for the greater good of the region. This challenge also seeks to develop strategic partnership for resource mobilization and use.
5. How to facilitate access to market information and integration to support the development of integrated markets and viable regional value chains. Issues addressed by this challenge include the need to identify market demands, generate information and create awareness.
6. How to facilitate access and availability of knowledge and technologies. This challenge addresses the issue of access to information and regional learning for up-scaling and improvement of intervention implementation by the Staples Programme.
7. How to facilitate regional policy harmonization to enhance access, utilization and movement in ECA of staple based technologies. This challenge addresses issues such as the need for harmonization of policies to facilitate access to inputs for staple crops production, trade and other technologies; and mobilizing capacity or resources and technologies for the region.
8. How to advocate and lobby programmes at regional and international levels to mobilize resources and communicate with stakeholders. This challenge aims to create communication, monitoring and evaluation (M&E) systems and a knowledge management platform that provide synergies for stakeholders and other ASARECA programmes. It also seeks to support lobbying and championing the will of the governments to support staple crops in the region.
9. How to develop and implement fewer activities to achieve impact-related success stories. This challenge aims at ensuring that the priority setting and AR4D agenda are robust enough to address critical constraints to crop and livestock production in ECA. This challenge also addresses the issue of planning and implementing activities in the context of a product driven research–development–delivery continuum.
10. How to ensure communication, including public awareness, and learning are integral parts of the programme. Specifically this challenge aims at assuring the development and formalization of communication objectives by the programme and all its projects. The purpose of communication will be for information sharing, learning, M&E and marketing.
11. How to build partnerships with private and public sector stakeholders to ensure functionality of innovation systems and impact orientation. This challenge seeks to set up a framework that ensures breadth and depth of experience and skills present in the region are exploited to deliver impact as innovation systems. This challenge also aims at developing teams and networks, from the public and/or private sectors to perform special tasks

for the region.

12. How to incorporate capacity building into every aspect of the research–development–delivery continuum for each product. This challenge recognizes the need to build capacities along the product development continuum as a long-term strategy for improving responsiveness, effectiveness and efficiency in AR4D.
13. How to develop and/or access the technologies and knowledge from other global knowledge centres to support AR4D in ECA. This challenge seeks to address the issues of access to utilization of technologies developed through global AR4D initiatives.

2.3. From Nine Commodities to One Integrated Programme: Implications

The Staples Programme is expected to build on and harness successes from all the six NPPs under ASARECA, namely BARNESA, EARRNET, ECAMAW, ECARRN, ECARSAM and PRAPACE.

The Programme has evolved from six networks and nine crop commodities. The design of thematic programme areas was based on a framework that permits convergence of investments to address diverse needs and challenges. Thus, orientation towards performance-based design and implementation is critical for the achievement of the ASARECA objectives. In the context of the Staples Programme, thematic areas underpinned by innovation systems concepts are crucial for impact orientation.

Accordingly, the proposed thematic areas cut across regional research activities/ priorities (constraints and opportunities) of the six NPPs and nine commodities. Subsequent projects will be developed either as distinct projects per thematic area or as projects designed to deliver outputs for the various inter-linked thematic areas. The devolution of networks into programmes was done following the guiding principles of the operational plan and the criteria below. Each new programme should be able to:

1. Mainstream and deliver ASARECA results
    - Contribute clearly to the delivery of ASARECA results.
    - Address ASARECA priorities.
2. Assure effective and efficient resource use
    - Conduct research with large resource needs.
    - Manageable grouping to ensure effectiveness.
    - Optimization without compromise of quality.
3. Precisely outline activity thrusts that promote convergence and learning
    - Should have clear-cut boundaries and close relationships between content.
    - Should have coherent group of clients at programme level.
4. Form relationships with external partners
    - Assure attractiveness of the grouping for development partner funding.

In line with these result areas the Staples Programme seeks to ensure the development

and operationalization of strategic and medium-term plans that reflect:

- Well-aligned priority activities to deliver ASARECA results in an equitable, impact-oriented and efficient manner.
- Conducting AR4D in a manner that assures regional public goods are developed for the region.
- Development of communities of practice and learning for up-scaling and improvement purposes.
- Contribution to the development of relevant policies to guide agricultural development in the region.

A key guiding principle in the formulation of the ASARECA programmes is the emphasis on performance-based decisions and implementation. In line with the guiding principle of continuity, the new Staples Programme will continue to interact with the following clusters of partners who will influence its vision of success towards the ASARECA results:

- Agricultural research policy-making entities
- Agricultural research implementing agencies (NARS)
- Agricultural research stakeholders (farming communities, industry, vendors etc.)
- Donors and other development partners
- Other sub-regional, regional and international agricultural research agencies (FARA, CORAF/WECARD (Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/The West and Central African Council for Agricultural Research and Development), SADC-FANR (Southern Africa Development Community-Food, Agriculture and Natural Resource Directorate), ARINENA (Association of Agricultural Research Institutes in the Near East and North Africa), CGIAR, local and foreign universities etc.)

The Staples Programme will build on partnership arrangements of the old NPPs to ensure buy-in, inclusivity, subsidiary and funds attraction in:

- Generation of research agenda
- Sourcing materials, funds and implementation
- Learning for up-scaling and out-scaling to non-direct project participation
- Enhancing stakeholder participation

CHAPTER THREE

3. THE STAPLE CROPS PROGRAMME STRATEGIC THRUSTS

3.1. Strategic Investment in Staple Crops in Agricultural Research for Development in ECA

To ensure efficiency and effectiveness, ASARECA undertook to review its strategic and operational plans. The review process created 7 programmatic areas from 17 commodity networks. These programmes are meant to catalyse national and regional distribution of gains from investments in commodity sub-sectors and development domains. The development domains were generated using a GIS and a multi-market model in an ASARECA-IFPRI commissioned study. Development domains refer to a combination of population density, agricultural land potential and access to markets attributes of agricultural land in ECA. Eight development domains and their implications for strategic investment in ASARECA are presented in Table 2.

Table 2: Regional development domains and their implications for ASARECA Strategy

Development domain	Per cent of ECA population	Per cent of rural population	Per cent of area km2	Strategic importance
HHH	17.2	14.2	1.9	Good niche, natural resource management concerns
HHL	6.2	4.7	2.5	Small, isolated niches
HLH	12.9	15.4	2.6	Small niche with access problems
HLL	23.9	28.2	38.2	Highest strategic priority
LHH	10.1	7	0.8	Requires irrigation, intensification
LHL	4	2.8	1.3	Intensification, irrigation niche
LLH	5.4	6.4	1	Low potential high density, emigration
LLL	12.6	15.1	20.7	Important for equity
Not included	7.7	6.3	31.4	Parks, protected areas, isolated

Note: The HHH domain with high agricultural potential, high population and access to markets is a good niche if natural resource management concerns are properly addressed but offers less scope for agriculture-led growth and horizontal expansion.

HLL: This is the largest agricultural domain accounting for 38% of the area in ECA; it is found in most countries. This domain is considered the highest strategic priority because of its size, suitability for different crops and potential for growth. However, it will require investment in infrastructure, security and market access to be exploited.

HHH: This area with favourable conditions accounts for less than 2% of the area and already contains 17% of the population and 14% of the rural population. Intensification and management-intensive techniques are needed.

HLH: This is another small domain in terms of area with high population density. High value products depend on solving the market access problem. Nevertheless, it remains a small niche.

LLL: In spite of low potential this domain is important in terms of size and rural population and is therefore strategic for the region.

3.1.1. Implications of Development Domains for ASARECA

1. Contrary to popular opinion, concentrating on traditional exports and niche markets will make only a small impact on poverty and hunger.
2. The biggest impact on poverty reduction comes from concentrating on staples
3. (e.g. maize, sorghum and cassava) and commodity sub-sectors for which demand is greatest and/or likely to grow fastest, e.g. milk, oilseeds, fruits and vegetables. Traditional exports have saturated markets and niche markets by definition will benefit a limited number of growers, processors and traders.
4. Productivity growth as a result of research will not lead to economic growth and poverty reduction without roads, markets and access to information. Balanced growth will take place if growth-linkages include value addition along the producer-to-consumer chain as well as backward linkages to the seed industry and other input suppliers. Strategic investment should prioritize efforts to satisfy internal demand.
5. The strategy should recognize and exploit opportunities for regional collaboration. Potential spillover from research is important and countries can reduce learning costs by sharing information.
6. The programmatic approach developed will provide for identification of priority sub-regional research thrusts that will promote achievement of up to 50% spillover gains to ECA. This will permit the Staple Crops Programme and ASARECA to complement rather than compete with NARES. By strategically investing in selected commodities ASARECA will also study the possibility of improving labour productivity which has grown at just over 2% per year in the last decade. The Staples Programme will build on and harness successes of all the original six networks associated with it.

3.2. The Staple Crops Programme Strategic Objectives

The strategic objectives of the Staple Crops Programme embrace the central thrusts and performance areas which the programme will pursue to contribute to ASARECA's vision and mission. Four strategic goals represent the vision of the impact that the programme would like to achieve. They provide the strategic orientation and positioning of the Staple Crops Programme and demonstrate commitment to achieve impacts in the four areas through a range of strategies. These are described below.

3.2.1. Strategic objective 1: Strategic technology generation platforms developed and strengthened to efficiently and effectively conduct impact oriented AR4D for the region

The strategic objective seeks to address threats such as diseases, pests, drought, floods and climate change through generation of regional public goods. Specialized networks will be developed and used to generate technologies and products for the wider benefits of the region. This strategic goal will address emergent, resurgent and new abiotic and biotic threats to the region. This will also include strategic investments that create new niches and/or expand existing ones.

3.2.2. Strategic Objective 2: Shared research and training facilities and capacities rationalized for enhanced economies of scope and scale

This strategic objective seeks to address the challenge faced by NARES in production of impact oriented products in the required frequencies, quality and quantities against a backdrop of limited resources (human resources, infrastructure and funds). The key components of this strategic goal are:

- Effective resource rationalization to support research and capacity building. Resources to be rationalized mainly include research infrastructure, while those to be shared include human resources and specialized agro-ecologies.
- Sharing of resources to reduce transaction costs, increase cost-effectiveness, improve solidarity and promote efficiency.

3.2.3. Strategic Objective 3: Information management for marketing, learning and advocacy that contributes to agricultural policy and development practice

This strategic objective seeks to address communication, marketing and learning between the programme and its stakeholders. Communication has become an integral part of the AR4D process, since multiple stakeholders are involved and there is need to communicate at all levels.

The key components of this strategic goal are:

- Development and implementation of a communication strategy to serve the Staple Crops Programme and all it stakeholders.
- Policy advocacy and lobbying for sharing of resources to reduce transaction costs, increase cost-effectiveness and provide solidarity and

promote efficiency.

3.2.4. Strategic Objective 4: Enhanced productivity, regional value addition and improved access to regional and global markets of staple crops in ECA

This strategic objective seeks to enhance the development of regional undertakings, especially the development of regional value chains. It also aims to support management of spillover effects. The components are:

- Development of frameworks and or platforms to support regional value chains for strategically important crops.
- Policy harmonization to support regional trade, area strategic AR4D and capacity building.

3.3. The Programme/Thematic Areas

Three thematic areas of commonality between regional priorities and demand by other programmes were identified as the focal result areas of the programme. The programme/thematic areas and the rationale for their selection are provided below.

1. Thematic area one: Identification and management of information on and technology of regional importance to staple crops. This programme area will mainly focus on knowledge management including the generation and management of information, knowledge and technologies, and utilization and learning from activities implemented in ECA. It will thus address critical issues of germplasm exchange and networking.
2. Thematic area two: Addressing regional threats for sustainable improvement in the productivity and competitiveness of staple crops in ECA. This thematic area seeks to address regional threats by setting up frameworks to respond, and strategically conduct AR4D to address the region's threats to agricultural production. This includes epidemics, resurgent and new threats, biotic and abiotic, to the region. Doing so will require collective action for resource mobilization, priority setting and establishing linkages for addressing regional threats.
3. Thematic area three: Enhancing productivity, value addition and improving access to regional and global markets of staple crops in ECA. Programme area three seeks to enhance the development of regional undertakings and to support the actualization of spillover management of investments. It will address policy related to transboundary issues—improving selected regional input and output value chains (seed systems, processing and value addition, standards, policies, regulations, certification etc.) and capacity building.

3.3.1. Thematic area 1: Enhanced Germplasm Information and Technology Exchange, Conservation and Utilization to Catalyse Productivity of Staple Crops

Rationale

Access to germplasm by both farmers and researchers is one of the impediments to enhanced productivity in ECA. The region has varied capacities and genetic resources that can be shared by the different countries. For example Uganda has one of the largest collections of East African highland bananas with the most advanced banana improvement programme in the region; Ethiopia has the largest collection of sorghums and millets and is a centre of diversity for these particular commodities; and Kenya has one of the most advanced maize improvement programmes within the Kenya Agricultural Research Institute (KARI) that is well linked to a viable formal seed sector. With an expanded mandate of research technology adoption and education, ASARECA will need to put in place a system that permits free movement, access and use of the region's resources to generate regional public goods. Enhancing production of staple crops, especially within the framework of innovation systems, calls for the development of mechanisms to handle four critical issues:

1. Supporting germplasm and conservation exchange in ECA for wider use by the region.
2. Enhancing easy access to technologies/innovations and their utilization in the region by NARES.
3. Management of communication and knowledge among ASARECA programmes and the various ASARECA stakeholders.
4. Developing the needed capacities to conduct quality germplasm management research that has an impact on the production of staple crops in the region.

The areas are critical to the success of AR4D and up-scaling of success lessons in the ASARECA region. These four areas address policy harmonization, capacities for sustainable utilization of the germplasm in the region and information brokerage.

Outputs and outcomes of this thematic area

Investments in this thematic area are bound to generate outputs and outcomes that are needed to strengthen agricultural productivity in the ECA region. These outputs and outcomes will address, in large measure, the four issues raised above that are critical for improved access, movement and management of the regions genetic resources.
The following outcomes are anticipated:

1. Efficient and effective regional systems for germplasm access, utilization and management. The Staple Crops Programme will work in concert with the Policy Analysis and Advocacy Programme to realize this outcome. Some of the outputs that will help realize this vision of impact include: harmonization of policies to handle seed systems and access to technologies between ASARECA member countries; and regional seed and other inputs delivery systems will be developed as will policy options for their efficient operationalization.
2. A responsive, efficient and effective learning platform for staple crops. The Programme will develop various knowledge and learning frameworks for its activities. Outputs that will contribute to the realization of this outcome include the development of a communication strategy, and a learning and

communication framework. The learning framework will include an M&E system to support performance based and impact oriented operations of the Staple Crops Programme.

3. An effective and efficient regional AR4D system for germplasm management and agro-input access. The programme will develop regional capacities (human and infrastructure) of the region's NARES to sustainably exploit genetic resources for the wider good of the region. This outcome will also address strengthening of systems for access to other technologies needed to enhance agricultural productivity in ECA operations of the Staple Crops Programme.

The challenges to be addressed in thematic area

The challenges to be addressed in this thematic area include:

- How to harness the opportunity of improved information and communication technology to access information, enrich the information content and reduce the cost of networking.
- How to operationalize the linkages among diverse actors to bring together all the stakeholders and organized bodies.
- How to broker information exchange among the diverse ASARECA stakeholders who inter-phase with the Staples Programme.

Strategies to address the above challenges

The challenges in this strategy will be addressed using the following approaches:

- Developing a communication and knowledge management strategy. This will include, among others, supporting a web portal for staples; developing and operationalizing media for diverse publics; and engaging in promotional activities with other stakeholders.
- Developing and managing linkages in collaboration with other ASARECA programmes to forge synergy to enhance generation of outputs.
- Brokerage of information access from a wide range of knowledge resources to support staple crops based AR4D and productivity in the region.

Sub-thematic areas

This thematic area has three sub-thematic areas of focus:

1. Developing and harmonizing policies to facilitate easy sharing/exchange of and access to germplasm.
2. Developing capacity to manage and efficiently utilize germplasm and other technologies to address key production and productivity constraints.
3. Establishing mechanisms for enhancing efficient communication of knowledge information and learning products to key stakeholders.

3.3.2. Thematic area 2: Addressing Regional Threats for Sustainable Improvement in the Productivity and Competitiveness of Staple Crops in ECA

Rationale

Regional threats are unusual occurrences that have the potential to negatively affect the region in a relatively short time. They are mainly biotic and abiotic in nature. Biotic threats include diseases, pests and invasive weed species. Diseases may be completely new and hence there would be little knowledge about their biology, epidemiology and control. Resurgent diseases are endemic, but largely unimportant or effectively managed, but could suddenly become severe and begin to spread rapidly. Resurgent diseases become more severe when new strains emerge. Invasive weeds are mainly introduced but spread rapidly across huge areas of land in a relatively short period of time. In general, if biotic threats are not controlled, they can lead to significant crop losses.

Abiotic threats include those resulting from weather and climatic changes and edaphic (soil-related) factors. The most common abiotic threat to the ASARECA region is drought. Drought has recently become more common with large areas in many of the ASARECA countries being more or less under constant drought. Crop and animal production in this region has been greatly affected by drought, resulting in severe food insecurity, often culminating in famine. Due to the nature and scale of manifestation of these threats, their mitigation requires a region-wide approach. In the extreme, floods have also become more common, most probably as a result of global warming. Strategies to deal with floods do not yet exist in the region. A more widespread, but location-specific abiotic threat is edaphic in nature and trends in the past have shown declining soil fertility, resulting from poor soil conservation efforts and intensive cultivation.

Outputs and outcomes of this thematic area

Biotic and abiotic stresses dramatically reduce the capacity of crops to exploit their full genetic potential, resulting in limited yields or at the very extreme, complete crop losses. These threats may be new or resurgent (exist and are erratic in epidemic occurrence). Addressing these threats will contribute to the following outcomes.

1. Efficient and effective regional agricultural innovation systems to address staple crops challenges. The Staple Crops Programme will put together specialized teams and rationalize resources to improve robustness of the NARES and strengthen other related agricultural innovation systems. The programme will, through these networks, contribute to enhanced human and infrastructural capacity as well as funding for AR4D.
2. Enhanced productivity and livelihood strategies. Technologies and processes generated will enhance the robustness of the farming communities to handle production threats. This will result in improvement in incomes and other aspects of their livelihood strategies. Outputs that will contribute to this outcome include: improved staple crop yields; reduced post-harvest losses; improved marketability; sustainability and improved access to quality staple crop products; and improved incomes amongst others.
3. Staple crops productivity catalysed to stimulate economic growth in ECA. ASARECA, through identified development domains, seeks to strategically

mobilize the production of certain crops that will stimulate productivity and economic growth in ECA. Four development domains are targeted to pilot these investments. Through these investments key development targets including those of CAADP and the MDGs will be met.

4. Efficient and effective national agricultural innovation systems to address staple crops challenges. The Staple Crops Programme will provide strategic support to national innovation systems. Capacities will be developed where they are weak or absent. This will enhance national capacities and address challenges that affect staple crops. Moreover, the Programme will support development of systems for learning.

The challenges to be addressed in thematic area

In order to achieve the goals of the Staple Crops Programme by successfully addressing regional threats, strategies have been designed to address the associated challenges on how to:

- Mobilize and process support to agricultural development in the ECA region.
- Harness existing capacities and experiences in the region to develop new human resources for research and development and other critical gap areas.
- Strengthen the capacity of NARES to absorb and retain staff in the region to support agricultural development.
- Harness existing goodwill from government to improve funding and support to agricultural research and development.
- Harness existing technologies, knowledge or data in the region for the wider benefit of ECA.
- Improve seed systems to support accessibility and adoption of elite germplasm by the farming community.
- Harness agricultural sector reforms and institutional frameworks to improve integration of stakeholders to develop and deliver agricultural technologies in the ECA region.

Strategies to address the above challenges

The above challenges that are associated with regional threats to staple crop production can be addressed through the following four strategies:

1. Development and implementation of a mechanism to support access to utilization and adoption of critical data, knowledge and technologies by NARES and other stakeholders in the region.
2. Development of competences to enhance effectiveness and efficiency of informal and formal seed systems (in partnership with the public and private sectors) to produce and deliver quality seeds to the farming community.
3. Harnessing and/or creating appropriate platforms to develop and utilize technologies/knowledge for the region using resources and capacities in and outside the region.
4. Influencing the policy and working environment of NARES and critical

stakeholders to promote impact in the region.

Sub-thematic areas

This thematic area will focus on two sub-thematic areas to address regional threats to staple crops production in the ECA:

1. Enhancing access and utilization of novel technologies and seed systems to improve productivity of vegetatively propagated staples to increase incomes, to encourage sustainable use of natural resources and improve resilience of communities.
2. Intensification and integration of novel cereal technologies for improved food, feed and industrial utilization in the ECA region.

3.3.3. Thematic area 3: Enhancing productivity, value addition and access to regional and global markets of staple crops in ECA

Rationale

ASARECA envisions that an innovation system will help bring together various participants in an innovation process that are jointly responsible for its ultimate outcome and impact, while retaining a focus on the role of agricultural science and technology as the driving force in progress. Metcalfe (1995) defined innovation systems as "that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process". Thus the innovation systems approach provides a framework through which whole value-chain based research and development undertakings can be implemented. Given that ASARECA seeks to strategically invest in staple crops with significant spillover, the development of programmatic activities that will assure that are critical.

Enhancing productivity of the staple crops will call for AR4D addressing the value chain of these commodities in an innovation systems framework. Staple crops production in ECA is essentially smallholder based, with limited use of purchased agricultural inputs and improved technologies. For instance, improved seeds are purchased by less than 10% of the smallholder farmers and less than 2% of the producers use fertilizers and agro-chemicals. For all countries in the region, off-farm yields for staple crops are in most cases typically 25–33% of what is achieved on station. Trade in these crops across ECA is mainly in primary produce form. Processing and other value addition activities are very limited. Furthermore, participants in the value chains operate individually, often with small quantities and no formal linkages nurtured to improve performance. Transactions are dominated by spot markets with very high transaction costs, lack of trust and opportunism, with very few contracts or long-term business relationships. This situation breeds speculation and opportunism, leading to market distortions and loss of interest on the part of the producers. Thus developing regional value chains of the staple crops to enhance trade and incomes is the focus of this thematic area.

Outputs and outcomes of this thematic area

The need to transform staple crop production from smallholder subsistence based farming to commercial farming and to improve general economic growth, calls for transformation of the sector using value chain based approaches. It also requires several interventions. First, it requires implementation of activities that will ensure the promotion of linkages and building capacity among stakeholders in technology development, dissemination process and uptake pathways. The second intervention is strengthening seed supply and other input supply systems. Finally, it also requires undertaking diagnostic analysis that provides information and opportunities to stimulate productivity, value addition and product development for regional and global markets.

The outputs and outcomes of these interventions are provided below:

1. Approaches to develop and sustain staple crops regional value chains developed. Such systems will generate lessons upon which other staple crops value chains could be developed. This output will result from increased public–private sector partnerships and enhanced capacity of key stakeholders to participate in commodity value chains.
2. Robust, efficient and effective input and seed supply systems for staple crops developed leading to improved access to improved technologies for production in ECA. This outcome also involves the harmonization of policies to handle seed systems and access to technologies between ASARECA member countries. Regional seed and other inputs delivery models and best practices will be developed.
3. Market information system established to facilitate access to the regional and global markets. Development of regional value chains will require setting up good market information systems to facilitate regional trade. Various models and approaches will be developed and tested, and lessons for scaling up and out.
4. Improved availability, access and affordability of staple crops. This outcome will be realized through increased volume, range and value of staple crops and their products that will be sold into regional global markets.

Challenges address by this thematic area

In light of the anticipated results, problems and opportunities, the following are the key challenges that will need to be addressed:

1. How to strengthen public–private partnerships to improve productivity and get processing industries moving to diversify markets for staple crops.
2. How to improve, harmonize and operationalize policies and programmes to improve seed production, access and distribution systems, particularly for open pollinated and vegetatively propagated crops.
3. How to sensitize producers, traders, processors and consumers on quality standards across the region. This challenge seeks to harness the increasing awareness of nutrition and health that has fuelled an increasing demand for traditional crops, e.g. finger millet, orange-fleshed sweet potato and others.
4. How to overcome key market bottlenecks along the value chains that can

link farmers to potential demand in regional markets and enable them to participate profitably.

5. How to link ASARECA's stakeholders with information systems on regional markets. This includes harnessing opportunities such as activities of the Common Market for East and Southern Africa (COMESA) to promote regional trade in staple crops to reduce food insecurity.

Strategies to address the above challenges

In order to address the challenges the following strategies will be used:

1. Supporting evidence based policies by building convincing cases, based on research and familiarity with the value chains and regional markets, to attract private partners to invest in production, processing and other value addition areas.
2. Development and implementation of communication strategies on quality and standards and mechanisms to avert risks. This will also include establishing and operationalizing information delivery systems for markets and products.
3. Providing incentives to build public–private partnerships in order to solve problems along the value chains.
4. Developing and implementing a knowledge management strategy that provides for cataloguing of best practices in the region that need up-scaling and learning.

Sub-thematic areas

Enhancing productivity, value addition and markets cut across the entire production–consumption continuum. Several of these sub-themes and projects can actually fit well in the other two programme areas. The thematic areas are:

1. Enhancing value addition of staple crops through processing and product diversification.
2. Improving access to regional and global markets of staple crops through market analysis and information dissemination.

3.3.4. Managing spillover for all three thematic areas

The ASARECA Strategy is clear on the need to assure management of spillover effects in the region. However, the wide diversity of biophysical and socioeconomic conditions in ECA agro-ecologies can be a hindrance to spreading of benefits from investments in research to the region. The Staple Crops Programme is cognizant of this issue and seeks to address it by strategically implementing interventions in a manner that will assure spillover. Specifically, the programme will consider sub-sectors and development domains as well as uptake, up-scaling and dissemination in the design of spillover management. In addition, emphasis on elements of AR4D and innovation approaches that may involve different ways of engaging other non-traditional actors such as the private sector, civil society and governments will be adopted.

Moreover, the new mandate of ASARECA provides a legitimate platform for up- and

out-scaling lessons and knowledge. ASARECA now directly involves agricultural extension, private entrepreneurs, farmers' associations and agricultural educators. This expanded platform of ASARECA actors provides a strong foundation for creating learning alliances, technology/adoption fairs where exchange of knowledge and experiences can be fostered thus given the centrality of the issues raised. The following strategies to manage spillover are planned: the outputs of the Staple Crops Programme will be scaled up and out throughout the ECA region to contribute to ASARECA's goals.

1. Enhancing regional germplasm exchange. This will include developing material transfer agreements for the operatonalization of policies.
2. Enhancing regional technology movement and exchange. This will focus on strengthening utilization of innovation between ASARECA member states and capacity building (human and infrastructure).
3. Developing a knowledge and information management system. This system will assemble data (create databases and tools, collect data) for usage by various stakeholders in the region in conjunction with NARES and other partners. The framework will also provide for scaling up and out of activities. The knowledge management system will also include M&E systems for self-learning and improvement of the programme's interventions.
4. Developing and implementing advocacy and lobbying activities. The aim will be to influence policy reforms that favour new and old technology up and out scaling in partnership with the ASARECA Technology Uptake and Up Scaling Initiative and other relevant initiatives.
5. In building spillover management. All projects to be developed will in-build activities for scaling up and out of lessons for the wider benefit of the region. The projects may also identify stakeholders and partners engaged in similar initiatives, develop mechanisms for sharing information and where necessary strengthen their capacity to validate/ adapt, package and promote the technologies.

3.3.5. Internal and External Communication

Communicating is an integral component of the Staple Crops Programme Strategy. Communication entails exchange of message and contacts (such as exchange of ideas, interactions, consultations and transmission). This component aims to provide rich and stimulating contexts and experiences for all stakeholders who interact with ASARECA and specifically the Staple Crops Programme, and within ASARECA. A summary of the communication strategy is provided in Box 2.

Box 2. Elements of the Staple Crops Programme Communication Strategy

Purpose: To promote the discovery, integration, dissemination and use of new knowledge by society, development agencies and NARES, and to achieve excellence in ECA agricultural science and technology at all levels.

Message: Share and disseminate programme activities such as research results, research in progress or research methods to diverse stakeholders including those who interact with the programme, and within ASARECA.

Audience: The targeted audience in this case will be the diverse stakeholders with whom the programme interacts such as researchers, farmer institutions, development partners, other ASARECA programmes and ASARECA management, governments, and private and public institutions. Messages will be tailored to meet message communication needs of all these audiences.

Channel: This entails the types of media for communication. They will be determined along with other ASARECA programmes to ensure good targeting and impact of the communication process.

The outcome of communication by the Staple Crops Programme will be an informed ECA citizenry which has access to information and knowledge (ideas and tools of science) to improve quality of life, health, prosperity and welfare.

CHAPTER 4

4. OPERATIONALIZATION OF PROGRAMME AREAS

4.1. Managing Linkages and Partnerships

Developing partnerships with the regional and international organizations involved in staple crops research and development will be critical for the success of some AR4D undertakings, and for up- and out-scaling lessons learned within the ECA region. These organizations are engaged in a variety of AR4D activities ranging from generating public or, in some cases, private–public goods to disseminating and scaling up and scaling out of these technologies. To ensure synergy, leveraging and complementarities, coordinated joint planning and implementation are critical. The programme will address this issue by setting up a knowledge and information sharing mechanism that is integrated with other ASARECA programmes to ensure effectiveness. The goal of such an approach is to lower transaction costs and support diversification of research results.

Accordingly, to benefit from shared engagements with other actors involved in agricultural AR4D, the Staple Crops Programme shall pull all the partners together through annual conferences and joint programme and project planning. The Programme will create a regional forum for interaction and also enter into a formal cooperation and partnership agreement that:

1. Supports and strengthens technology generation and commercialization of technologies in member countries.
2. Secures access to public and privately owned technologies or products to avail to interested stakeholders from member countries or elsewhere.
3. Provides entry for regional activities by technology providers, service providers and resource providers working on staple crops.
4. Generates and/or contributes to research and development agenda to all, by internally or externally funded SROs.

4.2. Creating Synergies between Programmes and within Programme Areas

The Staple Crops Programme is in principle a core unit of ASARECA that generates technologies central to agricultural productivity in ECA. Because of the centrality of staple crops in the livelihood strategies of the vast majority of the ECA population, this Programme needs to integrate its activities with other programmes of ASARECA to ensure success of the interventions. Thus the programme will, through its operations, supply managerial options to enhance delivery of the ASARECA result areas. Of most critical concern is the need to synergize with the following programmes: Agro-bio-diversity and Biotechnology; non-Staples Crops; Knowledge Management and Technology and Up-scaling; Policy Analysis and Advocacy; and Natural Resources Management.

4.3. Monitoring and Evaluation and Learning

Monitoring progress and evaluating results are key management functions in any performance-based management plan. Performance monitoring is an ongoing process that allows managers to determine whether or not a programme or activity is making progress towards its intended results. Performance information plays a critical role in planning and managing decisions. The strength of an M&E system lies in its ability to provide performance information, which is used to manage for results and to improve project performance, efficiency and impact—both expected and unexpected—in relation to stated objectives. Evaluation helps to identify effects that are attributable to the programme.

The overall goal of an M&E system is to establish a means of providing critical information for decision makers to assist them in guiding implementation of programme/project activities towards attainment of stated objectives. This goal recognizes that specific elements of the implementation programme may require adjustment to respond to evolving conditions either within or external to the programme/project. Hence, the M&E system is a management tool for systematically reviewing programme/project progress, troubleshooting problems and issues during programme/project implementation, and assessing areas where programme/project activities may need to be refocused to ensure plans, schedules and assignments remain current. In addition, where there are real successes or new opportunities beyond what was contemplated, management decisions can be made to channel more resources into these growth areas.

The users of the M&E system are many and they include programme/project staff, partners, collaborators, clients, donor community and host governments. Therefore, establishing an effective performance measurement system requires developing an understanding and agreement among all stakeholders of the project as to what is to be achieved and how important performance management decisions will be made. Hence, where appropriate, the Staple Crops Programme will involve stakeholders in the implementation and use of the M&E system and subsequent performance reviews.

To provide the comprehensive coverage needed for programme/project progress reviews, troubleshooting and other management tasks, the M&E system will track two main types of indicators: impact and performance. Where appropriate, indicators will be disaggregated by commodity, geographical location and gender. Impact indicators, such as employment generated, increased sales, and improved management capabilities, measure the effects or results of project outputs. Performance indicators track the immediate inputs and outputs of the project and the deliverables. These are products that are directly attributed to the Staple Crops Programme activities, such as the number of agents trained, studies conducted etc. Performance indicators provide feedback to managers on project performance and help identify areas where implementation strategies may need to be adjusted. Performance indicators for the M&E system will be selected based on the overall strategic approach to the Staple Crops Programme and respective projects to be implemented.

4.4. Project Design and Management

The Staple Crops Programme will take the typical operational plan/business plan approach in the implementation of programme thrusts. In this case the Operational Plan will be developed based on identified thrusts of the strategic plan. The Operational Plan will define the following key issues:

1. The major development needs to be addressed in ECA. These will be identified as thematic areas and sub-themes in cases where themes are very large.
2. Programmatic approaches/strategies to operationalize the sub-thematic areas in terms of projects. Projects in this case are time bound specific interventions that aim to deliver targeted outputs. Projects will be designed to deliver a suite of products that cut across the thematic areas. In some cases some projects will be selected and developed to deliver specific outputs. All projects will be developed to contribute to the ASARECA results and will be selected from a prioritized process following guidelines in the ASARECA Consolidated Framework. Projects will be implemented largely using networks of specialization that are contracted to deliver outputs where ASARECA has comparative advantage.
3. Learning and knowledge management frameworks for the programme to sustainably engage and have an impact on interventions that meet the needs of the ECA agricultural development needs and add value to ASARECA impact thrusts.
4. Management of the programme to deliver results.
5. Cost implications of the programme.

The rationale behind this approach in the programme design of activities is because it provides for the following: the Staple Crops Programme is new to ASARECA and precautions must be taken to ensure it is well developed and strategically placed in ASARECA and the region; and ASARECA is involved in the generation of public goods as it is a not-for-profit organization and therefore needs funds. This approach builds transparency, accountability, relevance and results oriented intervention which attract funding, a fact that the programme needs to address. The new Staple Crops Programme will continue with most of the stakeholders of the former six NPPs and some new ones will also be developed. Development of an Operational Plan using multiple stakeholders will provide for building of synergies and partnerships to implement new thrusts.

CHAPTER 5

5. GOVERNANCE AND MANAGEMENT

Implementation of the Staple Crops Programme strategy will be guided at three main levels of governance: 1) The ASARECA Board; 2) The ASARECA Secretariat (Directorate); and 3) The Programme Management Unit. Through the Directorate, the Board will provide oversight over the Staple Crops Programme Strategy and provide policy direction. The Programme Management Unit will be responsible for the implementation and coordination of activities by the programmes.

5.1. Roles and Responsibilities of Managerial Committees

The programme management unit will oversee the development and implementation of projects and will perform the basic functions of:

- Providing a mechanism for regional coordination to harmonize projects and activities.
- Developing and implementing fund-raising strategies and activities for the operationalization of the strategy.

At the programme management level, ASARECA rules and procedures such as the Competitive Grants Scheme (CGS) will guide the implementation of regional projects. This coalition of partners that will include NARS scientists, nongovernmental organizations, extension services, the private sector, policy makers and civil society organizations will emphasize generation of public goods for the region, under the leadership of the relevant NARS.

Projects will be designed to run for at least three years to ensure that they give the desired results. They will be managed by project leaders who will be engaged on full-time basis for projects that exceed a budget of US$ 500,000. Project leaders will be recruited regionally and will work under the supervision of the programme manager. For sub-projects within projects regional resource persons will be contracted from leading partners for fixed periods in a year and will work under the guidance of the project leaders.

5.2. Funding

Successful implementation of the Staple Crops Programme Strategy will require stable financing. Five ways of raising funds that will be used are:

1. Core funding. The funds that cover core activities of the Staple Crops Programme are expected to come from ASARECA core funds. These funds
2. will be used to implement central and cross-cutting projects and will

include budgets for advocacy and outreach, dissemination of information, building knowledge bases, M&E and impact assessment, the Technical Advisory Team, support to task forces and short-term consultants, and periodic review of priorities and projects.

3. Project funding. Core projects will be developed and implemented by multi-institutional and multi-country partners to deliver the regional agenda and obtain funds for implementing them. Sources of funds will include donors, the private sector, the ASARECA CGS and competitive schemes of other organizations.
4. Research funds. Another avenue that will be explored is to raise such funds directly by responding to calls for proposals from donors, ASARECA through its CGS, and regional and global funding programmes.
5. Institutional contribution. Partner institutions will be expected to make monetary and contributions in kind to projects. This will include staff time, research and training facilities at no or reduced costs.
6. Leveraged funds. This will be used in situations where partners (institutions or individuals) have their own funds which they wish to use to support the Staple Crops Programme priority research projects. The contribution would be in both technical staff time and resources to the Staple Crops Programme agenda.

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