ASARECA

Transforming Agriculture
for Improved Livelihoods

Turning agricultural knowledge into action

Knowledge Management and Upscaling Programme

STRATEGIC PLAN

2009–2014

ASSOCIATION FOR STRENGTHENING AGRICULTURAL RESEARCH IN EASTERN AND CENTRAL AFRICA

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Contents

Abbreviations and acronyms

A-AARNET   ASARECA Animal Agriculture Research Network
AHI   African Highlands Initiative
AICM   Agricultural Information and Communication Management
ANAFE   African Network for Agriculture, Agroforestry and Natural Resources Education
APVC   Agricultural product value chain
AR4D   Agricultural research for development
ASARECA   Association for Strengthening Agricultural Research in Eastern and Central Africa
AU   African Union
BARNESA   Banana Research Network for Eastern and Southern Africa
ECABIO   Eastern and Central African Biotechnology Program
CAADP   Comprehensive Africa Agricultural Development Programme
CGS   Competitive grant scheme
CKM   ASARECA Communication and Knowledge Management Strategic Plan
CTA   Technical Centre for Agricultural and Rural Co-operation ACP-EU
CGIAR   Consultative Group on International Agricultural Research
COMESA   Common Market for Eastern and Southern Africa
CORAF   West and Central Africa Council for Agricultural Research and Development
CORNET   Coffee Research Network
DFID   Department for International Development (UK)
DONATA   Dissemination of New Agricultural Technologies in Africa
EAPGREN   Eastern African Plant Genetic Resources Network
EARRNET   Eastern Africa Rootcrops Research Network
ECA   Eastern and Central Africa
ECAMAW   Eastern and Central Africa Maize and Wheat Network
ECARRN   Eastern and Central Africa Rice Research Network
ECARSAM   Eastern and Central Africa Regional Sorghum and Millet Network
ECABREN   Eastern and Central Africa Bean Research Network
ECAPAPA   Eastern and Central African Programme for Agricultural Policy Analysis
FAAP   Framework for African Agricultural Productivity
FAO   Food and Agriculture Organization of the United Nations
FARA   Forum for Agricultural Research in Africa
FOODNET   Post-harvest Processing Network
GDP   Gross domestic product
GFAR   Global Forum on Agricultural Research
GTZ   German Technical Cooperation
IARC   International agricultural research centre
ICT   Information and communication technology
ICM   Information and communication management
ICU   Information and Communication Unit
IFPRI   International Food Policy Research Institute
INASP   International Network for the Availability of Scientific Publications
IPTA   Innovation for technology adoption
KAINet   Kenya National Agricultural Information Network
KMUS   Knowledge Management and Upscaling Programme

MDG	Millennium Development Goal
NARES	National agricultural research and extension systems
NARI	National agricultural research institute
NARS	National agricultural research system
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organisation
NPP	Networks, programmes and projects
OFSP	Orange-fleshed sweet potato
PRAPACE	Regional Potato and Sweet potato Improvement Network
QPM	Quality protein maize
RAIN	Regional Agricultural Information Network
RAILS	Regional Agricultural Information and Learning System
REC	Regional economic community
R&D	Research and development
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SACCAR	Southern Africa Centre for Co-operation in Agricultural Research and Training
SWMNET	Soil and Water Management Network
t	Metric tonne
TOFNET	Trees on-Farm Network
TTP	Technology Transfer Project
TUUSI	Technology Uptake and Up scaling Support Initiative
UN	United Nations
USAID	United States Agency for International Development

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. The primary aim of establishing ASARECA was to promote efficiency through attainment of economies of scale and sharing of resources to tackle common constraints.

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 Eastern and Central Africa (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 African Union/New Partnership for Africa's Development (AU/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 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 countries, along with all their counterparts in Africa, have committed themselves to increase the share of their national budgets for agriculture to achieve this goal. The support provided to ASARECA by the development partners adds value to ongoing agricultural development efforts in the sub-region to achieve the goals of CAADP.

Over the past two years, ASARECA has reviewed its past performance, current status and future projections of agricultural performance in ECA and laid out strategic directions and priorities for the next 10 years (ASARECA 2007). These strategic directions and priorities for agricultural development in the region have been aligned to the objectives of 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). To strengthen NARS and link them regionally, ASARECA has expanded its initiatives and leadership by linking agricultural research to the political dialogue possible in 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 by:

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

ASARECA has seven new programmes:
1. Staple Crops
2. High Value Non-Staple Crops
3. Livestock and Fisheries
4. Agro-Biodiversity and Biotechnology
5. Natural Resource Management and Biodiversity
6. Policy Analysis and Advocacy
7. Knowledge Management and Upscaling

Central to the vision and the 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 the 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.

This document presents the strategy and priorities for the ASARECA Knowledge Management and Upscaling Programme (KMUS). They were developed through participatory processes that involved all ASARECA member national agricultural research institutes (NARIs) and key stakeholders. I would like to thank Dr Lydia Kimenye, Programme Manager, KMUS, and all our stakeholders for working hard to enable ASARECA define its future direction and priorities in the context of sub-regional knowledge management and upscaling.

Seyfu Ketema
Executive Director, ASARECA

Executive summary

Introduction

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) developed a new strategic plan covering the period 2007–2016 following a review of its old plan. The review was necessitated by the need to incorporate emerging challenges and new developments in the sub-regional agriculture for development environment. The new strategic plan is designed to position ASARECA strategically as a key driver in the improvement of the sub-regional agricultural contribution to the attainment of the Millennium Development Goals (MDGs) targets on hunger and poverty. The new strategy is in line with the African Union/New Partnership for Africa's Development (AU/NEPAD) vision for agricultural transformation entrenched in the Comprehensive African Agricultural Development Programme (CAADP). The plan incorporates the expanded mandate of the Association, which includes agricultural extension, agricultural education and training and empowerment of farmers. To operationalise the new strategic plan, ASARECA has formulated an operational plan covering the period 2008–2014.

As a sub-regional organisation, ASARECA is committed to contributing to the four pillars of CAADP with special emphasis on the implementation of Pillar IV, whose focus is on agricultural research, technology dissemination and adoption, and farmer empowerment. This new commitment led to the expanded mandate and required a fresh approach to agricultural research, its governance and management as well as the development of systems and capacity to monitor, document and report on progress and impact. Part of the new approach was a shift from the network configuration to a programme structure for facilitating agricultural research. This move entailed rationalisation of the former 17 regional networks, programmes and projects (NPPs) to 7 programmes so as to improve efficiency and effectiveness in the implementation of an increased portfolio of sub-regional priority research areas.

In the development of its new strategic plan, ASARECA identified knowledge management, technology uptake and upscaling as among the critical thematic areas in agricultural research for development (AR4D) that require strengthening. The strategy review process noted that while the ASARECA NPPs had adopted a production-to-consumption concept in their approach to AR4D and had, to some extent, acquired experience with technology uptake, there were still weaknesses in capacity, especially in competencies and in understanding emerging approaches for upscaling knowledge and technologies. In addition, a need for greater integration of the ASARECA technical portfolio was highlighted as critical for harnessing the synergy of programmes and for providing support in cross-cutting thematic issues such as upscaling, policy and natural resource management to commodity oriented programmes.

The Knowledge Management and Upscaling Programme (KMUS) was established as one of the seven research programmes and mandated to address technology uptake and upscaling, and knowledge management. The programme was further mandated to implement the elements in CAADP Pillar IV that deal with technology dissemination and adoption, agricultural extension, education and training, and farmer empowerment.

In preparing this strategic plan, KMUS and stakeholders have taken into consideration the new developments that are shaping the knowledge management and upscaling environment in the sub-region and globally. The strategy positions the programme as a key driver of upscaling agricultural technology and knowledge. It lays out strategic thematic areas for the programme to focus on and priority interventions for development and promotion of best-bet approaches in scaling up; empowerment of farmers and their organisations; and strengthening institutions, both public and private, engaged in agricultural advisory and extension delivery. The programme expects to achieve this through its research, capacity development and support service mandate in knowledge management and scaling up. This, in turn, is expected to enhance the contribution of ASARECA to the CAADP objective of achieving 6% growth in African agriculture per year by 2015.

Uptake and upscaling of agricultural knowledge

Many organisations are increasingly calling for a serious focus on promotion of uptake and scaling up of available knowledge. They argue that the observed gap between knowledge and action is in part a result of researchers limiting the communication of research results to scientific fora such as journal publications and scientific conferences. This approach limits the extent to which decision makers and key players along research impact pathways are reached by research knowledge. The challenge of bridging the gap between generation and use of research information can be addressed through production of targeted agricultural knowledge delivered through appropriate communication channels.

Many national and regional initiatives have called for improvement of knowledge management, including enhanced use of information and communication technology (ICT) at all levels. However, particular attention would have to be given to reduction of costs and risks of adoption; institutionalisation of promotion and delivery systems that efficiently bring innovations to farmers and agribusiness; and improvement of efficiency in the generation and adaptation of new knowledge and technologies. Knowledge management is about generation and dissemination or sharing of knowledge. Effective knowledge management therefore includes finding ways, tools and media that will enable people with similar interests collaborate, seek and share knowledge. In Eastern and Central Africa (ECA) effective knowledge management is hampered by several challenges:
- Inadequate analysis of agriculture sector communication stakeholders, their knowledge needs, attitudes and practices to knowledge management;
- Poor identification of the actual and anticipated knowledge products and services for the agriculture sector;
- Inadequate mechanisms for capturing, systematising and sharing available knowledge;
- Use of ineffective media and channels for communicating with different stakeholders;
- Weak monitoring and evaluation of knowledge management systems.

Scaling up best-bet agricultural technologies is a process of efficiently increasing the socio-economic impact of research outputs. It is achieved through replication, spread, or adaptation of techniques, ideas and approaches. Institutional scaling up, which involves influencing higher level institutions, is considered the most effective process for achieving large and wider impact agricultural knowledge and technologies. However, there are many challenges to scaling up. The following have been identified as key challenges to scaling up proven agricultural technologies in ECA:

- Limited recognition of the role of the research system in scaling up;
- Weak linkages among agricultural stakeholders;
- Inadequate communication plans for promotion of uptake and scaling up;
- Inadequate evaluation for uptake and use of agricultural knowledge;
- Inadequate budgets for promotion of uptake and scaling up;
- Inadequate capacity in promotion of uptake and scaling up;
- Capacity weaknesses;
- Failure to link reward and incentive systems to impact;
- Insufficient end-user involvement;
- Ineffectiveness in the extension systems and the technology dissemination processes.

The formal extension system in most of the countries in ECA has remained the weakest link in the research–extension–farmer continuum. Therefore, extension is often cited as a major reason why many existing proven technologies are not widely available for uptake by farmers. Other challenges associated with the weak extension system include:
- Inadequate support and value addition to institutional innovations in agricultural extension and advisory delivery systems;
- Poor identification of capacity and training gaps in extension staff and agricultural advisory providers, and strategies for addressing them;
- Inadequate support to farmer and producer organisations in the context of institutional innovations;
- Weak regional capacities for information, knowledge and experience sharing and exchange to support continuous learning and innovation;
- Limited harnessing and integration of indigenous and farmer knowledge into mainstream innovation and knowledge management systems.

Integration of knowledge management and upscaling

KMUS was created from two past initiatives of ASARECA, namely the Regional Agricultural Information Network (RAIN) and the Technology Uptake and Upscaling Support Initiative (TUUSI). During the strategy development process, the agricultural product value chain (APVC) framework was adopted as a factor integrating the two past initiatives. Stakeholders perceived the value chain as the main vehicle through which agricultural knowledge serves to drive uptake and upscaling of agricultural technologies for enhanced impact of research. In addition, past reviews had shown that most ECA countries do not exploit their huge potential to add value to their agricultural produce through agro-processing and vertical integration. Even in the relatively successful market-oriented horticulture, coffee and tea sectors, many countries in ECA still market their produce either in primary or semi-processed forms. Thus, adopting the APVC framework provides the analytical processes for addressing this as well.

The APVC framework permits analysis of the entire value chain from production through marketing and to the utilisation of a given agricultural commodity. It also can be used to trace the product flows and to show value additions at different stages from the production input and knowledge supply side to the output utilisation or demand side of the value chain. It enables the identification and analysis of key actors and their relationships at different stages in the chain, and the enterprises that contribute to production, services and the required institutional support. The framework helps to analyse bottlenecks that prevent progress, provides a mechanism for sector-specific intervention, and

helps to identify strategies to help local enterprises compete and improve earning opportunities. It also enables identification of relevant stakeholders for programme planning.

Programme strategic focus

Vision: Agricultural knowledge contributing effectively to improved livelihoods in Eastern and Central Africa.

Mission: Enhance regional collective action in agricultural knowledge management and upscaling of technologies and innovations to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa.

Guiding core values:
• Professionalism, ethics, scientific excellence and proactiveness in problem identification and resolution
• Partnerships for collaborative advantage and synergies
• Performance and service orientation to meet and exceed client expectations
• Respect for indigenous knowledge
• Transparency, accountability and cost-effectiveness
• Participatory and consultative approach

Programme level results:
The programme has identified three strategic results and aligned them to the ASARECA level results:

Result 1: Uptake of demand driven agricultural technologies, approaches, knowledge and information **catalysed**.
Result 2: Capacity for scaling up agricultural technologies, knowledge and information in ECA, **enhanced**.
Result 3: Availability of information on agricultural innovation **enhanced**.

The results are designed to position the programme strategically as a key driver of scaling up agricultural technologies for enhanced productivity, commercialisation and competitiveness of the agriculture sector of the ECA sub-region. They are also aimed at positioning the programme as a regional reference point in agricultural knowledge management and upscaling.

Programme strategic themes and sub-themes

Three strategic themes and six sub-themes or areas of intervention were identified for the programme:

1.0 Development of approaches and methods to make agricultural product value chains work
    1.1 Development and implementation of appropriate approaches and methods for scaling up agricultural product value chains
    1.2 Identification, prioritisation and analysis of priority agricultural product value chains

2.0 Capacity development for agricultural product value chain actors
    2.1 Strengthening institutional and organisational structures and processes for active participation in priority agricultural product value chains

2.2   Development and implementation of appropriate skills and competencies for establishing, managing and scaling up priority agricultural product value chains

3.0   Managing knowledge in agricultural product value chains
    3.1   Improvement of communication and sharing of demand driven regional agricultural knowledge
    3.2   Establishment and operationalisation of integrated regional knowledge acquisition and management systems

Strategy implementation arrangements

ASARECA and KMUS recognise the significant role of each stakeholder and industry player in agricultural research, knowledge management and scaling up. In view of this, the programme will strive to nurture an organisational culture that puts a premium on scientific achievement, service delivery and capacity for effective teamwork and collaborative partnerships that shall be reflected at all levels of the programme's operations. This culture shall be strengthened using modern project management approaches and a participatory system of monitoring, evaluation and learning that shall provide constant feedback to programme management on progress towards achievement of mutually agreed targets.

To operationalise the strategic plan, the programme shall develop a detailed operational plan covering the same period. The operational plan shall, in turn, be operationalised through rolling annual work plans in which the activities and the respective milestones required to deliver each of the yearly targets shall be specified. The adoption of the rolling annual work plans approach is expected to facilitate annual review of the ongoing activities in close consultation with the relevant key stakeholders and their adjustment in the context of emerging priorities and funding opportunities. The annual work plans shall be expected to provide full details on the outputs and their respective intervention strategies, activities, milestones, operational budgets, and the implementing countries, institutions and organisations.

The programme shall develop and operationalise a suitable monitoring and evaluation plan capable of tracking implementation of the approved projects and activities. This plan shall be built on the principles of the overall ASARECA monitoring, evaluation and performance plan and shall include the use of result frameworks, work plans, field/site visits, semi-annual and annual reports, mid-term internal evaluation and end of term external evaluation.

1 Background

1.1 Sub-regional economic performance

Virtually all the economies of the 10 countries in the Eastern and Central Africa (ECA) sub-region are based on agriculture, with nearly 70% of the citizens relying heavily on agriculture for their livelihoods either as primary producers, traders or marketers, and from engagement in agro-industry. Agriculture accounts for about 43% of regional gross domestic product (GDP). Thus, performance of the agriculture sector is critical to economic growth. Furthermore, given that most of the over 280 million people in the region pursue agricultural-based livelihoods, the performance of the sector has significant implications on efforts to reduce poverty and on livelihoods.

Despite the importance of agriculture, its performance has remained poor for many years. Compared to global and African means, the commodity productivity and agriculture growth in the sub-region are very low. Food and Agriculture Organization of the United Nations (FAO) statistics show that the yields of most of the crops and of livestock are far below global and Africa means. For example, maize, a major staple crop in ECA, has an estimated yield of 1.39 metric tonnes (t)/ha compared to a global mean of 4.47 t/ha (FAO 2007). This trend implies that for countries in the ECA sub-region to achieve substantive economic growth, drastic improvement in agricultural production and productivity is indispensable, especially in the smallholder sector.

1.2 Global and regional initiatives

Countries in the sub-region are signatories to most of the global, continental and regional initiatives with a direct impact on agriculture and the management and utilisation of natural resources. The Millennium Development Goals (MDGs) (UN 2000) targets on poverty and hunger have direct implications on the agriculture sectors in the sub-region since the economies and livelihoods of most of its people are based on agriculture.

At continental level, the African Union/New Partnership for Africa's Development (AU/NEPAD) has an ambitious programme to eradicate poverty in Africa and to place its countries on a path of sustainable growth over the next 15 years (NEPAD 2005). The programme is a commitment of African countries, individually and collectively, to the MDGs. The programme, the Comprehensive Africa Agricultural Productivity Programme (CAADP), defines the AU/NEPAD vision for the continent's agricultural productivity and growth. The vision recognises that to improve agricultural productivity countries must address a number of critical challenges such as climatic variability, poor rural infrastructure, unsupportive policies and weak capacity, and institutional and regulatory frameworks affecting agriculture.

CAADP offers a platform for joint action by African governments, regional organisations, farmers, private agribusiness and development partners to accelerate growth and eliminate poverty and hunger in Africa. The main objective of CAADP is to help African countries reach a path of higher economic growth through agriculture-led development. CAADP has a set target of a 6% growth in agriculture per year by 2015 to be delivered through four mutually reinforcing pillars:
- Pillar I: Land and water management
- Pillar II: Rural infrastructure and trade-related capacities for market access
- Pillar III: Increasing food supply and reducing hunger
- Pillar IV: Agricultural research, technology dissemination and adoption

Although continental in scope, CAADP is an integral part of national efforts to promote agricultural growth and economic development. It is based on the following key principles and targets:

- The principle of agriculture-led growth as a main strategy to achieve the MDG of poverty reduction.
- The pursuit of 6% average annual agricultural growth at the national level.
- The allocation of 10% of national budgets to the agriculture sector.
- The exploitation of regional complementarities and cooperation to boost growth.
- The principles of policy efficiency, dialogue, review and accountability.
- The principles of partnerships and alliances to include farmers, agribusiness and civil society communities.
- Implementation principles that assign roles and responsibilities for programme implementation to individual countries, coordination to designated regional economic communities (RECs) and facilitation to the NEPAD Secretariat.

1.3 The Association for Strengthening Agricultural Research in Eastern and Central Africa

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) was established in September 1994. It is a non-profit, non-political organisation and, together with the Southern Africa Centre for Co-operation in Agricultural Research and Training (SACCAR) and the West and Central Africa Council for Agricultural Research and Development (CORAF), forms the Forum for Agricultural Research in Africa (FARA). ASARECA comprises 10 member countries: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda.

The overall mandate of ASARECA is to serve the national agricultural research and extension systems (NARES) of the 10 member countries by adding value to nationally coordinated programmes, pooling resources for shared objectives and promoting efficiency through attainment of economies of scope and scale. As a sub-regional organisation, ASARECA is responsible for providing leadership in the implementation of CAADP Pillar IV in ECA. The main objective of the Association is to promote regional economic growth by facilitating generation and dissemination of agricultural technologies and innovations. ASARECA has a regional mandate to:

- Increase the efficiency of agricultural research in ECA so as to facilitate economic growth, food security and market competitiveness through productive and sustainable agriculture.
- Improve the relevance, quality and cost-effectiveness of agricultural research.
- Establish and support ECA regional mechanisms to reinforce and improve research collaboration among the national agricultural research systems (NARS) of the region.
- Improve the delivery of new appropriate information and technology.

1.3.1 ASARECA strategic direction and focus

In 2005, ASARECA undertook a review of its strategic plan and developed a new one covering the period 2007–2016. The review was necessitated by emerging challenges and new developments in the sub-regional agriculture for development environment that needed to be incorporated into the strategy. The new strategy is designed to position ASARECA strategically as a key driver to increasing the contribution of sub-regional agriculture to the attainment of MDG targets on hunger and poverty and the AU/NEPAD Africa-wide vision for agricultural transformation. It has also incorporated new areas in the ASARECA

mandate covering agricultural extension, agricultural education and training, and empowerment of farmers. The new strategy seeks to enhance productivity through innovative approaches that assure development of shared goals through collaboration, specialisation and sharing of results. ASARECA has realigned its agenda to support agricultural development in an approach that recognises that:

- Productivity growth in sub-nationally targeted development domains is critical for overall agricultural growth;
- Enhanced productivity growth for traditional and non-traditional export commodities is important, but does not have major impacts on overall economic growth or poverty without growth in major staples;
- Investments that promote marketing and productivity growth in non-agriculture sectors are important for realising the potential in agriculture.

The ASARECA vision is to be a "regional leader in agricultural research and development for improved livelihoods in Eastern and Central Africa". Its mission is to "enhance regional collective action in agricultural research for development, extension and agricultural training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa".

To ensure proper alignment to the global and regional initiative, the ASARECA super-goal, which is "increased economic growth and improved livelihoods in the ECA while enhancing the quality of the environment", is derived from the MDGs, while the spirit of the Framework for African Agricultural Productivity (FAAP) is captured in the goal statement which is "enhanced sustainable productivity, value added and competitiveness of the sub-regional agricultural system". More importantly, since CAADP Pillar IV focuses on supporting efforts to enhance the utilisation of improved technologies and farming methods, the ASARECA purpose, "enhanced utilisation of agricultural research and development innovations in Eastern and Central Africa", is designed to contribute to this agenda. In order to ensure delivery of this purpose, ASARECA has developed five strategic results:

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

1.3.2 Rationalisation of networks to regional programmes

As a sub-regional organisation, ASARECA is committed to contributing to the attainment of the four CAADP pillars with special emphasis on the implementation of Pillar IV whose focus is on agricultural research, technology dissemination and adoption, and farmer empowerment. This commitment required a fresh approach to agricultural research, its governance and management as well as the development of systems and capacity to monitor, document and report on progress and impact. In this regard, ASARECA undertook far-reaching reforms in its approach to agricultural

research and its institutional structure, systems, management and governance. The reforms included a move from the network configuration to programme structure in the implementation of its mandate. This entailed rationalisation of the former 17 regional networks to 7 programmes to facilitate the implementation of a large portfolio of priority projects of sub-regional relevance and reduce management complexity as shown in table 1.

Table 1. New ASARECA programmes and their former regional networks

New ASARECA programmes	Former regional ASARECA networks
1. Staple Crops	BARNESA; EARRNET; ECAMAW; ECARRN; ECARSAM; and PRAPACE
2. High value non-Staple Crops	CORNET and ECABREN
3. Livestock and Fisheries	A-AARNET
4. Agro Biodiversity and Biotechnology	ECABIO and EAPGREN
5. Natural Resource Management and Biodiversity	TOFNET; SWMNET; and AHI
6. Policy Analysis and Advocacy	FOODNET and ECAPAPA
7. Knowledge Management and Upscaling	TUUSI and RAIN

A-AARNET = ASARECA Animal Agriculture Research Network; AHI = African Highlands Initiative; BARNESA = Banana Research Network for Eastern and Southern Africa; CORNET = Coffee Research Network; EAPGREN = Eastern African Plant Genetic Resources Network; EARRNET = Eastern Africa Rootcrops Research Network; ECABIO = Eastern and Central African Biotechnology Program; ECABREN = Eastern and Central Africa Bean Research Network; ECAMAW = Eastern and Central Africa Maize and Wheat Network; ECAPAPA = East and Central African Programme for Agricultural Policy Analysis; ECARRN = Eastern and Central Africa Rice Research Network; ECARSAM = Eastern and Central Africa Regional Sorghum and Millet Network; FOODNET = Post-harvest Processing Network; PRAPACE = Regional Potato and Sweet potato Improvement Network; RAIN = Regional Agricultural Information Network; SWMNET = Soil and Water Management Network; TOFNET = Trees on-Farm Network; TUUSI = Technology Uptake and Upscaling Support Initiative.

1.3.3 ASARECA operational plan

After developing the new strategy and through a wide and intensive consultative and participatory process, ASARECA formulated an operational plan for the period 2008–2014 to operationalise the strategy. The plan outlines research programmes and their aims and the key changes to research, management and governance structures and systems for delivering its mandate. The operational plan also shows how ASARECA collaborates with relevant initiatives and what the Association aims to deliver during the implementation period. In particular, the plan states a firm commitment to deliver on the objectives of CAADP Pillar IV which ASARECA has a specific mandate to implement in this sub-region within FAAP. The operational plan is underpinned by five key principles:

1. **Delivery**: The plan seeks to dramatically improve the delivery of the ASARECA outputs and increase the impact of its sub-regional agricultural research projects. This calls for 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 effective while maintaining spillover effects.
3. **Institutional learning**: Establishing and implementing mechanisms to draw lessons from past experiences to identify processes and mechanisms which work effectively. This implies regular assessments and continuous adaptation to a changing environment.
4. **Transparency**: Stakeholder involvement in the operational plan will be participatory and consultative. Information/communication systems will be established to keep all concerned parties informed.

5. **Broad partnerships**: ASARECA will enhance its partnership base to make full use of available specialised experience in relevant fields, thus creating an enabling environment for delivering on its expanded mandate.

1.4   Past efforts in knowledge management and upscaling

1.4.1 Regional Agricultural Information Network

Although the Regional Agricultural Information Network (RAIN) was established in 2003, its history dates back to its predecessor, AfricaLink, which started in 1996 and focused on infrastructure for national agricultural research institutions (NARIs) to access the Internet. The growing need for networking and sharing information and developing skills in information and knowledge management led to the creation of RAIN. With a mission to "promote the provision and sustainable management of client-oriented agricultural information throughout the ECA region", RAIN identified six priority areas for intervention: (i) enhanced skills in information and communication management (ICM) and information and communication technology (ICT); (ii) improved access to current agricultural information; (iii) improved generation of new agricultural information content; (iv) improved targeting and distribution of information to different categories of users; (v) sustainable financing for agricultural information; and (vi) harmonised strategic and policy environment for agricultural information.

1.4.2 Technology uptake and upscaling support initiative

A few years after its establishment, ASARECA identified technology uptake and upscaling as an area that needed strengthening. Although most of the former regional commodity networks, programmes and projects (NPPs) attempted to incorporate technology dissemination in their research, the uptake of research by end-users remained poor. ASARECA therefore established the Technology Transfer Project (TTP) whose aim was to improve technology dissemination and adoption by encouraging research to forge partnerships with other players and to develop more effective dissemination approaches and uptake pathways. Through TTP, which used competitive grants, the NPPs and their NARS partners made progress and gained some experience in promoting technology uptake.

However despite the establishment of TTP, much of the success on technologies and innovations generated and disseminated by the NPPs remained localised at pilot level and in many cases there was very limited capture, analysis and sharing. The Technology Uptake and Upscaling Support Initiative (TUUSI) was created in November 2006 to improve this situation. The mission of TUUSI was "to advance good practice in technology upscaling approaches and pathways in ways that will result in widespread adoption of agricultural innovations ultimately leading to impact at scale across the ECA sub-region". Its purpose was "enhanced uptake and upscaling of agricultural innovations in the ECA sub-region." The TUUSI strategic plan had three thematic areas: (i) action research on extension, agricultural advisory service delivery, farmer empowerment and upscaling issues; (ii) establishment and coordination of a sub-regional information portal and information and knowledge sharing/ exchange platforms; and (iii) strengthening capacity in technology uptake and upscaling.

In addition, TUUSI had eight priority project areas: (i) scaling up farmer-led seed enterprises for sustained productivity and livelihoods in ECA; (ii) farmer empowerment for enhanced agricultural productivity and growth in ECA; (iii) innovative approaches to agricultural advisory delivery services; (iv) scaling up sustainable market chain approaches for smallholder commercialisation and sustainable

livelihoods in ECA; (v) transfer and dissemination of proven and emerging agricultural technologies in orange-fleshed sweet potato; (vi) transfer and dissemination of proven and emerging agricultural technologies in quality protein maize; (vii) reaching end-users in post-conflict and disaster areas with proven and emerging technologies in orange-fleshed sweet potato and quality protein maize; and (viii) collaborative establishment of national agricultural knowledge management platforms.

1.4.3 Achievements from past knowledge management and upscaling efforts

In its activities, RAIN emphasised strengthening regional capacities to access, generate, exchange, package, disseminate and use information for agricultural research and development in ways that contributed to the ASARECA purpose. Capacity strengthening was primarily provided through training workshops and later through the development of a postgraduate programme in agricultural information and communication management (AICM). The past achievements of the network are discussed below.

Enhanced skills in ICM/ICT: RAIN, in collaboration with selected universities and agricultural research institutes in the sub-region, spearheaded the development of a postgraduate programme in AICM. The main aim was to produce agricultural information experts with the competence to effectively communicate agricultural issues, develop and operate agricultural information systems, carry out research on issues relating to the use of agricultural information, and provide professional AICM support. The AICM programme comprised three academic levels: a two-year MSc programme with five areas of specialisation, a one-year postgraduate diploma, and an ICT/ICM course module that could be incorporated into ongoing agricultural MSc programmes.

Improved access to available agricultural information: RAIN, in collaboration with FAO and CABI Africa, was instrumental in the creation of a pilot national agricultural information e-repository network in Kenya. The Kenya National Agricultural Information Network (KAINet), a network of institutions engaged in agriculture, aims to promote information access and exchange among stakeholders in the agriculture sector to support decision making, promote innovation and subsequently improve livelihoods. Other achievements in this priority area included holding national information stakeholder workshops in nine ASARECA countries. These workshops laid the foundation for collaboration among institutions, development of an inventory of agricultural information institutions and resources in Uganda, and provision of computers and establishment of Internet access at several sites in the ASARECA countries.

Improved generation of new agricultural information content: The main achievements in this priority area included redesigning the ASARECA website; development of the RAIN website; development of a contacts database/directory on the ASARECA website; and production of a publication entitled "Taking stock of RAIN 2003–2007".

Harmonised strategic and policy environment for agricultural information: RAIN was actively involved in the development of the ASARECA Communication and Knowledge Management (CKM) Strategic Plan and its implementation plan. The CKM Strategic Plan provided significant input into the ASARECA Operational Plan (ASARECA 2008) and led to the establishment of the Information and Communication Unit (ICU). Another notable achievement in this priority area was the formation of strategic partnerships. In addition, RAIN formed active collaboration with other organisations to implement its activities. These organisations included FARA (resulting in the formation of FARA–Regional Agricultural Information and Learning System (RAILS)), FAO, the Technical Centre for

Agricultural and Rural Co-operation ACP-EU (CTA), the Global Forum on Agricultural Research (GFAR), CABI, the International Network for the Availability of Scientific Publications (INASP) and international agricultural research centres (IARCs). The network also established close links with faculties of agriculture, computer schools and other related departments, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE), Wageningen University among others.

The notable achievements of TUUSI include:

Synthesis and production of best-bet available technologies and innovations: TUUSI collated, compiled and established a database on best-bet proven technologies and innovations that are ready for use to improve agricultural productivity in ECA. The technologies and innovations had been generated by past ASARECA NPPs (see TUUSI 2007). These were later synthesised and published in a booklet of abstracts of 37 best-bet technologies and innovations available for upscaling in the sub-region (Kimenye and Bombom 2009). The abstracts were organised according to thematic clusters—crop varieties, crop management practices, technology uptake approaches and processes, seed systems, natural resource management, processes for facilitating access to credit and markets, and policy. The booklet was published by the Knowledge Management and Upscaling Programme (KMUS). It provides a collection of well tried and tested technologies and approaches that have potential for upscaling to improve livelihoods.

Scaling up/out proven technologies: In 2008 TUUSI facilitated the implementation of two technology dissemination projects in selected countries of ECA. The projects were conducted under the FARA project Dissemination of New Agricultural Technologies in Africa (DONATA) and used the innovation for technology adoption (IPTA) approach. The two projects are: Dissemination of proven and emerging technologies in orange-fleshed sweet potato (OFSP); and Dissemination of proven and emerging technologies in quality protein maize (QPM).

TUUSI also facilitated establishment of strong foundations for scaling the technologies up and out and so far nine QPM varieties and related utilisation technologies and seven OFSP varieties and related utilisation technologies are at different stages of uptake pathways in four and five ECA countries respectively.

1.5   Knowledge Management and Upscaling Programme

When ASARECA was restructuring and redefining its strategic direction and focus, the innovation systems approach and technology uptake and scaling up were among the thematic areas deemed critical for strengthening. The review noted that while the ASARECA commodity networks had incorporated the production–to–consumption concept into their approach to agricultural research and had, to some extent, acquired experience with technology uptake, there were still weaknesses in capacity, especially in the understanding of and competencies in emerging approaches for getting research into use at scale. The review recommended greater integration of cross-cutting thematic issues such as upscaling, policy and natural resource management to the commodity-oriented research portfolio.

ASARECA created KMUS as a vehicle through which to address the acknowledged weaknesses in technology uptake and upscaling and in management of agricultural knowledge. The programme also has the responsibility of implementing the elements in CAADP Pillar IV that deal with

technology dissemination and adoption, agricultural extension, education and training, and farmer empowerment. KMUS was formed by merging RAIN and TUUSI.

The programme's strategy takes advantage of current and emerging opportunities to enhance the capacity of ASARECA to be proactive in the priority area of agricultural knowledge management and scaling up. The strategy is designed to position the programme as a key driver in the empowerment of farmers, livestock producers and their organisations and to facilitate strengthening of institutions involved in scaling up agricultural technologies and knowledge. The programme expects to achieve this through its research, capacity development and support service mandate in knowledge management and scaling up. This in turn, is expected to enhance the contribution of ASARECA to the delivery of the CAADP pillars, in particular Pillar IV, and to lead to the attainment of the 6% growth in agriculture per year by 2015 envisaged in CAADP.

The strategy has been developed within the context of the ongoing economic, social, institutional and policy reforms taking place within the ECA sub-region. The process of its development drew lessons from and built on the past experiences and achievements of RAIN and TUUSI. It was informed by developments at the national, regional and international levels that are shaping the agricultural knowledge management and scaling up environment. Furthermore, the strategy has been developed through a highly consultative process involving all the key regional stakeholders. This was done to ensure that the final strategy incorporates all the constructive views and suggestions, builds on the current gains and strengths, and contributes significantly to increasing productivity, commercialisation and competitiveness of the sub-regional agriculture sector.

2 Situation analysis

2.1 Regional strategic priorities for agricultural development

The development of the new ASARECA strategic plan was guided by a 2005 ASARECA/International Food Policy Research Institute (IFPRI) study on the strategic priorities for agricultural research-for-development in ECA (Omamo and others 2005). The study recognises the socio-economic and biophysical realities that reflect agricultural potential, spatial distributions of human population and access to markets, and uses them to build some understanding of the fundamental opportunities and challenges facing agriculture in ECA. The study concludes that:
- Holding other factors constant, farmers in areas of high population density are more likely to undertake labour-intensive production strategies than those in areas of low density.
- Within ECA, the three most binding constraints influencing agricultural production potential are the availability and variability of water supply, soil fertility and the biotic pressure from pests and diseases.
- Information on access to markets is required to fully understand how a location's absolute agricultural potential translates into comparative advantage for different production activities.

Omamo and others (2005) define eight distinct agricultural development domains on the basis of population density, agricultural potential and market access. In defining these agricultural development domains, the study classifies these three factors using high (H) and low (L) values in the sequence of agricultural potential, market access and population density. The eight domains emerging out of this classification are: HHH, HHL, HLH, HLL, LHH, LHL, LLH and LLL. From further simulation analyses, the study concludes that:
- The HLL domain is the largest individual agricultural development domain in the ECA sub-region, covering 38% of the land area. It is found in most of the ECA countries. This was therefore considered to be of the highest strategic priority because of its size, suitability for different crops and potential for growth.
- The LLL, HHH and HLH domains were also found to have potential for agriculture-based growth. However, due to constraints arising from population pressure in the HHH and HLH domains and biophysical fragility in the LLL domain, such potential is likely to be more difficult to achieve.
- The agricultural-based growth in the LHH, HHL, LLH and LHL domains is unlikely to be large enough to warrant major investments in agricultural research for development (AR4D). Best-bet growth enhancing options in these areas are likely to lie outside agriculture.

From analyses of potential contribution to agricultural GDP and overall GDP, the study identifies national and regional priorities within the major commodity sub-sectors across the classified agricultural development domains and concludes that:
- When ECA was viewed as a region, milk emerged as the most important commodity sub-sector for growth-inducing investment in research and development (R&D). This was followed by oilseeds, cassava, and fruits and vegetables.
- On aggregation, the staples sub-sectors showed the largest contribution to overall GDP, followed by livestock products, fruits and vegetables, and oilseeds.
- Fruits and vegetables, beef, oilseeds and maize emerged as the commodities in which growth would yield large and widespread gains across many countries.

2.2   Agricultural knowledge management

Many organisations engaged in AR4D recognise that knowledge management is crucial given the proliferation of information, demands for rapid assimilation of data, and the increased value placed on knowledge as an asset. However, there is no standard definition of knowledge management. In an effort to better understand knowledge management some important concepts have been developed. These have led to a working definition viewing it as a conscious strategy of getting the right knowledge to the right people at the right time and in ways that improve its utilisation. For example, the key aspects of the knowledge management strategy of the Consultative Group on International Agricultural Research (CGIAR) are an increased knowledge of what is known; sharing what is known among the key players; and improved learning.

Many other practitioners also increasingly see knowledge sharing as a better description. Some would prefer to emphasise "learning", since the real challenge in implementing knowledge management is less in the "sending" and more in the "receiving", particularly the processes of sense-making, understanding, and being able to act upon the available information. Whatever term is used to describe it, knowledge management in the agriculture sector should be about the systematic connecting of stakeholders/people to the best practices, knowledge and expertise they need to create value by supporting:
- The creation or acquisition of knowledge relevant to opportunities and constraints;
- The synthesis and learning from such knowledge;
- The sharing through better communication and networking;
- The utilisation through promotion of uptake and scaling up by the right people at the right time in the right place to generate innovations.

Viewed this way, knowledge management in agriculture would then be expected to focus on knowing what needs to be done to solve the problems in the sector or to exploit opportunities; how it can be done; the source of knowledge needed to succeed; and who can do it. This is then followed by use of the networking mechanism to assemble the best expertise needed to implement the necessary tasks.

2.2.1 Information management

Information management is acquiring, processing, storing, organising and disseminating information. That information may be processed data or repackaged knowledge that is shared and decoded by recipients. Information management can be viewed as the supporting base for knowledge management. However, to be able to communicate the knowledge within a domain/sector such as agriculture, the information to be collected must be described. Similarly, with regard to knowledge management within a domain/sector, different categories of stakeholders must agree generally on ways to describe the information they collect as a group. Once they have descriptors for the information they need to collect, everybody can collect information that can be managed as knowledge. Starting from the agreed information description for a domain/sector, a good knowledge management system for that domain/sector can be realised with greater ease and with less effort.

The relationship between knowledge management and information management can be better understood by looking at the distinction between explicit knowledge (that can be articulated in formal language) and tacit knowledge (personal knowledge embedded in experience) and the conversion between the different forms. In the simplest scenario, when scientists write articles

on topics, they incorporate what they know (tacit) with the information in the literature (explicit) and produce an article that can be published in journals (explicit). Information management deals with the processes, systems and tools that deal with explicit knowledge that can be captured in a database, searched, manipulated and formatted. Communication tools and techniques are vital to the process of transferring knowledge—tacit to tacit, explicit to explicit and explicit to tacit. Viewed in this perspective, knowledge management encompasses both information management and communication.

2.2.2 Information communication technology

Communication is the ability to ensure that a thought, memory, an idea, historical facts or other forms of information is conveyed between any two entities. In the agriculture sector, the need for communication is to convey the knowledge and information that will contribute to alleviating poverty, changing livelihoods and having a positive effect on national economics. The communication of agricultural knowledge and information in ECA countries is currently characterised by weak and poorly coordinated linkages among the sector stakeholders. Agricultural knowledge exists in isolation among these various stakeholders, with limited exchange. The lack of awareness of its existence often leads to duplication of efforts and wastage of scarce resources.

Technology is a powerful tool that can narrow the gap between those countries that are benefiting from globalisation and those in which globalisation has led to heightened marginalisation. The use, application and transfer of modern technologies are central to sustainable development. The global revolution caused by the advancement and deployment of ICT demands the full involvement of the entire agricultural community if the technology is to be effective. ICT, which continues to revolutionise all facets of life in the world, has opportunities for fostering technological capabilities, and thus enhancing the prospect of economic development.

2.3   Uptake, utilisation and upscaling of agricultural knowledge

Many organisations are increasingly calling for a serious focus on promotion of uptake, utilisation and scaling up of available knowledge. This is because of the serious de-link between knowledge and action (Rogers 1995). This de-link is said to be the result of researchers limiting the communication of research results to scientific fora such as journal publications and scientific conferences. This approach limits the extent to which most decision makers and key players in the impact pathways are reached by the research knowledge. The challenge is how to address the gap between existing knowledge and utilisation in ways that can contribute to outcomes and impacts. Aldernburg (2007) argues that the processes of communicating, sharing and scaling up agricultural knowledge require focus beyond the range of research, extension services and farmers to other stakeholders.

2.3.1 Calls for increased promotion of uptake and upscaling

Over the past two decades there has been increased recognition of the need for a serious focus on promoting uptake and upscaling of available proven technologies and knowledge, especially to address agricultural and rural stagnation in sub-Saharan Africa. Views from most notable development organisations such as the UK Department for International Development (DFID), the United States Agency for International Development (USAID), German Technical Cooperation (GTZ) and the World Bank are outlined in their various recently launched international, regional and national development strategies.

In the United Nations (UN) call for an African Green Revolution, some of the key actions said to be required include putting into action existing knowledge. The call emphasises that: "knowledge is not lacking …, what is lacking, as ever, is the will to turn this knowledge into practice" (MDG Technical Support Centre 2004). Similarly, in the implementation framework for CAADP Pillar IV, the FAAP guidelines emphasise the importance of ensuring adequate end-user involvement, strengthening capacity in extension/technology dissemination and application of innovative upscaling approaches, especially the innovation systems framework. All these are suggested strategies to improve uptake and upscaling of technologies and knowledge for greater impacts on productivity and livelihoods.

In its rural development strategy the World Bank notes that scaling up good practices must become an integral part of development strategies (World Bank 2003). The strategy calls for identification and upscaling of good practices within countries, between countries and between regions. It asks for piloting of new and innovative approaches and emphasises strategic leveraging of projects to a larger scale to increase efficiency and impact. The World Bank (2003) is, in general, committed to knowledge sharing with a focus on adapting, adopting and utilising knowledge in ways which help it to work more effectively to reduce global poverty and holds the view that access to information and knowledge hold one of the keys for the Africa continent to unlock its potentials to bridge the development gap in relation to the rest of the world.

The DFID position on uptake, utilisation and scaling up is well stated in a research and policy paper (Surr and others 2002). The paper recommends an increased focus on the use of what is already known. This comes from acknowledging that much of the existing knowledge and experiences are hardly ever put into use. The paper cites examples of the monitoring and evaluation, and impact assessment reports of R&D programmes and projects which, if well synthesised and validated, could create greater understanding of what works and what does not and form a strong basis for better design of future research and development programmes. It laments that this knowledge lies idle in computers, reports which no one ever reads, and in the memories of senior practitioners.

Knowledge for development is central to the overall strategy of the USAID (USAID 2003). In general, USAID wants to see itself as a premier knowledge sharing organisation by providing stakeholders, partners, and the development community with the power to access and leverage worldwide development knowledge, generate new intellectual capital and continuously learn from experience. To this end, the USAID aim is to be recognised and valued as a development knowledge leader, committed to knowledge generation and sharing, working smarter with cutting edge technology.

Emerging initiatives at regional level such as CAADP are also emphasising the need to have clear mechanisms and processes for capturing and processing data into information, and for sharing it across different categories of stakeholders. The aim of this is to ensure that key findings and lessons from research and other sources are made available for use by stakeholders. Thus, agricultural research, extension and education must ensure increased content in their knowledge, information and communication elements.

Similar initiatives have emerged at country level, most of which aim to create conducive environments for promoting uptake, scaling up and general management of knowledge for the agriculture sector. This is partly because many of the ECA countries still have low levels of absorption of modern ICTs and their use in the agriculture sector is limited. Yet evidence from other parts of the world indicates that lack of demand-driven knowledge can hamper productivity, commercialisation

and competitiveness of the agriculture sector. In view of this, countries need to have well-developed agricultural research infrastructure that creates a knowledge base able to spur innovations and promote development. To do this, the system should first aim at changing the mindset from the restricted researcher–extension–farmer dissemination approach to a more holistic knowledge management and sharing. In addition, countries need to make deliberate efforts to acknowledge the role of science, technology and innovation in a modern economy, in which new knowledge plays a central role in development.

2.4   Strategic issues in knowledge management and upscaling

2.4.1 Challenges to scaling up of agricultural knowledge

One of the main aims of agricultural knowledge management is to promote uptake, utilisation and scaling up of improved technologies and innovations. For this to happen, clear mechanisms for effective communication and knowledge sharing with adequate budgetary provisions must be incorporated into agricultural R&D programmes and projects (DFID-NRSP 2003). In ECA effective knowledge management is often hampered by the challenges outlined below.

Inadequate analysis of agriculture sector communication stakeholders and their knowledge needs: Stakeholder analysis is used to identify the interests of stakeholders in relation to the problems that the agriculture sector aims to address. With respect to agricultural knowledge management, such analysis is used to identify those with whom the agriculture sector should communicate as well as all those who want to communicate with the sector. Stakeholder analysis also helps to identify and involve those who are expected to facilitate communication and knowledge sharing during and after completion of research and development programmes and projects.

Poor identification of the purpose for communicating with stakeholders: Without effective communication, key stakeholders in the agriculture sector may miss out on vital knowledge and information. Identification of the sector's knowledge products and services, past and future stakeholders and intended target audience are key factors in any communication initiative. However, perhaps the most critical factor on which effective communication depends is identifying what the communicator hopes to achieve.

Inadequate analysis of the agriculture sector stakeholders' knowledge, attitudes and practices: Stakeholders in the agriculture sector are varied in terms of educational, socio-cultural and economic status. As a result, their knowledge base, attitudes and practices on the various knowledge products and services are varied. Commercial service providers such as financiers, market operators and input suppliers tend to be more knowledgeable and have positive attitudes to technologies and practices relevant to them. Researchers, though average in knowledge, tend to be slow or indifferent to responding to the needs of their clients and in disseminating new technologies. However, most farmers/pastoralists/fisher-folk have low to average knowledge about most products and services in the agriculture sector and range from negative to positive in attitude and low in application of appropriate technologies.

Insufficient identification of the agriculture sector actual and anticipated knowledge products and services: The stakeholders involved in an agriculture sector product value chain are many and are usually at different levels of understanding/sophistication. The requirement for agricultural

knowledge products and services by each stakeholder category varies across stakeholders and over time. Therefore, continuous needs assessment is necessary to find out the target audiences' interest in knowledge, perceptions of, and behaviour concerning the actual and anticipated products and services.

Poor identification of media and channels for communicating with different stakeholders: Understanding the target audience, where it stands in terms of knowledge of and interest in the agriculture sector products and services and what media it is used to, as well as clarifying the reason for communicating with it, will all help in choosing the appropriate media.

Weak monitoring and evaluation of knowledge management systems: It is important to develop and establish an effective monitoring and evaluation system for ensuring that the communication materials contain relevant information; are in an appropriate and understandable language; and are accessible at a suitable/appropriate time, place and cost to those with whom the agriculture sector wishes to communicate. A feedback loop should form an integral part of the monitoring process to improve future communication efforts. Existing knowledge management systems in ECA countries often lack these elements in their monitoring and evaluation processes.

2.4.2 Challenges to upscaling best-bet agricultural technologies

Scaling up is a process of efficiently increasing the socio-economic impact of interventions. This is achieved through replication, spread or adaptation of techniques, ideas, approaches and concepts resulting in an increased scale of impact. Institutional scaling up, which involves influencing higher level institutions, is considered the most effective approach for scaling up agricultural knowledge and technologies. It is based on the recognition that actions are required from many institutions for effective and widespread adoption of technologies by target beneficiaries. In this context, scaling up is where efforts are made to communicate and share knowledge, especially the underlying principles, with higher level institutions and to bring in other stakeholders such as manufacturers, policy makers and investors from community or local level, to national and even global level. Uptake, acceptance and internalisation of technology at higher levels increase the chance that these institutions will support and invest in scaling it out. However, experience has shown that even when there is goodwill in higher level institutions, scaling up can remain a challenge. A 2005 study conducted in four ECA countries by the Soil and Water Management Network (SWMNET 2005), a former ASARECA network, found that the goodwill stated in policy documents is often not exploited and turned into action because of several challenges and barriers as outlined below.

Limited recognition of the role of research systems in scaling up: Although most available government and organisation policies, strategies and programmes emphasise accelerating increased impact on livelihoods and economic growth, these policy thrusts are rarely turned into action mainly because of two barriers: (i) generally low accessibility, poor distribution and untimely dissemination of the various policy and strategy documents to agriculture sector managers and researchers; and (ii) inadequate monitoring and evaluation of impact of investments in the agriculture sector R&D programmes and projects.

Weak linkages among agricultural stakeholders: Currently, most countries in ECA have distinct policy statements on division of labour between research and extension systems. In some of these countries, separate policies for NARS and the national agricultural extension system sharpen this division. As

a result, the unidirectional linear model of "research–extension–farmer" is predominant in delivery of extension advice and promotion of technology uptake and upscaling. This approach has proved ineffective because it leaves out all the other relevant stakeholders.

Inadequate communication plans for promotion of technology uptake and scaling up: Although many policy and strategy documents of most of the ECA country governments recognise and emphasise ensuring that agricultural research results reach the farmer, most of them lack a comprehensive plan of action to manage knowledge, ensuring communication and uptake promotion and effective scaling up. Basically, the goodwill stated in policy documents has not been exploited and converted into action.

Inadequate evaluation for uptake and utilisation of agricultural knowledge: Most research programmes and projects are rarely evaluated for effectiveness in communicating information and in facilitating knowledge sharing, uptake and utilisation. Furthermore, the terms of reference for most evaluations are often guided by the annual work plans of the programmes and projects being monitored. As is often the case, the work plans rarely include communication, uptake and impact targets. Therefore, monitoring and evaluation guided by such plans would have little basis for assessing these aspects.

Inadequate budgets allocated for promotion of uptake and scaling up: As indicated above, most annual plans of R&D programmes and projects do not include communication, promotion of uptake and impact targets because this is perceived to be the responsibility of the extension services. Consequently, limited time and budgets are allocated to project activities concerning communication, promotion of uptake and scaling up of research results. For this reason, results from these programmes and projects are rarely packaged for different clients, and are mostly presented in the form of technical reports and papers for scientific conferences and journals.

Inadequate capacity in promotion of uptake and scaling up: The poor promotion of uptake of research results is often blamed on lack of training of researchers, extension and education personnel in communication and uptake promotion. The source of this problem could be attributed to the training curricula in universities and agricultural training colleges in most ECA countries. Most postgraduate curricula neither cater for training in communication of research findings, monitoring, evaluation and impact assessment of projects nor offer in-service training courses.

Failure to link reward and incentive systems to impact: In most research institutions, including universities, the reward and motivation schemes for researchers are too low. In many cases, researchers are not rewarded for delivery of outputs. The evaluation criteria in most of these institutions are based on academic qualification and scientific publications in internationally refereed journals and scientific conference proceedings. To change this state of affairs, the criteria used in performance evaluation of agricultural researchers and extension personnel should be revised to reflect the main objective of client- and development-oriented research and extension, which is adoption and adaptation by farmers and other agro-entrepreneurs.

FAAP has also summarised the key factors that undermine technology dissemination, uptake and upscaling and these are common to most of Africa's agricultural productivity institutions and activities as outlined below (FARA 2006).

Capacity weaknesses: Most agricultural R&D practitioners lack capacity for scaling up best-bet agricultural technologies and innovations. This is especially true in terms of competencies, skills and understanding of emerging approaches such as the innovation systems and the value chain framework. Researchers and other stakeholders are increasingly turning to the agricultural product value chain (APVC) framework as an approach for enhancing uptake and upscaling of technologies and innovations. However, many of them are grappling with limited skills and competencies to apply the approach effectively.

Insufficient end-user involvement: Many R&D initiatives do not involve end-users sufficiently. Sufficient involvement of farmers and other end-users ensures that the technological packages being generated and promoted are relevant and appropriate, and that strategies for addressing challenges that affect utilisation are used. However, in most cases, end-users such as farmers and agribusinesses are not adequately empowered to play an effective role in these initiatives. The result is that in many countries in ECA, the needs of farmers and agribusiness often do not sufficiently drive the research and extension agenda, thus contributing to the lack of relevance and, in turn, limited impact. In CAADP Pillar IV, the FAAP guidelines emphasise development of systems which foster a greater farmer knowledge base that strengthens their organisations and empowers them to become more active partners in agricultural productivity initiatives.

Ineffectiveness in the extension systems and the technology dissemination processes: A weak and ineffective public agricultural extension system is one of the key factors contributing to low uptake and upscaling of agricultural technologies and innovations. The ineffectiveness of extension systems is tied to the issue of relevance and responsiveness of the processes of generation and dissemination of technologies with respect to farmers' needs. To be relevant and responsive, extension systems must change in many aspects. A key area for extension to change is in their role: to change from a prescribing to a facilitating role so that instead of promoting pre-determined technological packages, extension should shift increasingly to building the capacity of end-users to enable them identify and exploit technological and economic opportunities. However, too often, even when relevant, know-how and technologies are not widely taken up by farmers, implying lack of effectiveness in the dissemination approaches and processes. This leads to a related challenge: a need for more alternative approaches in the delivery of extension advice and technologies and for development of new sets of skills and competencies for extension service providers beyond technical agriculture.

2.4.3 Challenges to revitalisation of agricultural extension

The models and approaches for delivery of agricultural technology and advice to farmers in most ECA countries have been undergoing reform since the early 1980s. However, significant outcomes and impacts from the reforms have been few. Furthermore, in many cases the reforms have largely involved importing extension models from outside, usually advocating for downsizing of the extension service through concepts such as decentralisation, participation, pluralism, outsourcing/contracting and cost recovery (Gemo and others 2005). However, even with these various experimental models and approaches, extension managers and policy makers in most ECA countries still do not know which are appropriate or would be effective in their country situations and contexts. Thus, a systematic assessment of the effectiveness, suitability and upscalability of these models as well as the trade-offs between them would provide insights on what could be applied where. Some of

the challenges that need to be addressed to revitalise agricultural extension in the ECA sub-region are discussed below.

Poor identification of capacity and training gaps in extension and agricultural advisory providers and strategies to address them: Improving the technical capacity of advisory service providers to equip them with the relevant skills to understand and adopt new and emerging methods of delivering extension services is a strategic issue pertinent to the performance of both public and private extension. Whereas the need to maintain close links between research and extension is evident due to their clearly acknowledged complementary functions, the need for a similar interlink between extension and university colleges of agriculture is not well recognised, yet the university colleges have a role of replenishing the stock of human capital in the extension over time. A close link would help training institutions to identify new skills needed and develop programmes to address the gaps in the training curricula.

Weak and ineffective farmer organisations: Collective action by smallholder farmers through farmer organisations has been shown the world over to be an effective mechanism for creating economies of scale, reducing most of the transaction costs and risks that small producers often face. In the process, this improves their terms of access to both input and output markets. Organising into farmer organisations can provide smallholder farmers with a strong voice in forums where decisions that affect their welfare are made (such as in policy making and during international agricultural trade negotiations). However, many farmer or producer organisations in ECA are still underdeveloped and suffer from many challenges, both organisational and in technical capacities. FAAP has specifically emphasised strengthening farmer organisations as key in implementing the CAADP Pillar IV objectives.

Weak capacities for regional sharing of information, knowledge and experiences that support continuous learning and innovation: Knowledge, experience sharing and cross-learning are important avenues for enhancing the knowledge base and for improving the national innovation systems for improved agricultural productivity. Most agricultural R&D initiatives have in-built mechanisms for sharing and disseminating project results, achievements and lessons. Often, the focus in many of these initiatives is to achieve defined outputs, outcomes, impacts and to some extent research methods, but they include limited aspects of knowledge and experience sharing. Many of the observed limitations are linked to inadequate capacities and poor mechanisms of communication and sharing of knowledge at both national and regional levels.

Weak harnessing and integration of indigenous and farmer knowledge into mainstream innovation and knowledge management systems: There is now a growing awareness of the importance of local level indigenous knowledge and the need to develop and promote mechanisms for its harnessing and integration into mainstream agricultural knowledge and technology arena and dissemination.

3 Programme strategic direction

3.1 Programme vision, mission, core values and result framework

Vision: Agricultural knowledge contributing effectively to improved livelihoods in Eastern and Central Africa.

Mission: Enhance regional collective action in agricultural knowledge management and upscaling of technologies and innovations to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa.

Core values
KMUS has identified the following core values which the programme and its stakeholders hold in common and will endeavour to put into practice implementing the strategy.
- Professionalism, ethics, scientific excellence and proactiveness in problem identification and resolution
- Partnerships for collaborative advantage and synergies
- Performance and service orientation to meet and exceed client's expectation
- Respect for indigenous knowledge
- Transparency, accountability and cost-effectiveness
- Participatory and consultative approach

Goal: Enhanced sustainable productivity, value added and competitiveness of the sub-regional agricultural system.

Purpose: Enhanced utilisation of agricultural technologies and innovations in Eastern and Central Africa.

Results:
KMUS has three results areas, which are aligned and which contribute to ASARECA level results:
1. Uptake of demand driven agricultural technologies, approaches, knowledge and information **catalysed**.
2. Capacity for scaling up agricultural technologies, knowledge and information in ECA, **enhanced**.
3. Availability of information on agricultural innovation **enhanced**.

3.2 Integration of knowledge management and upscaling

KMUS was created out of two past initiatives of ASARECA, namely RAIN and TUUSI. During the strategy development process, the value chain framework was adopted as an integrating factor for merging the key thrusts of RAIN and TUUSI. Stakeholders perceived the value chain as a vehicle through which agricultural knowledge serves as the fuel that drives uptake and upscaling of agricultural technologies. Knowledge management was one of the thrusts in the RAIN strategy, while upscaling of improved technologies was a major component of TUUSI. The value chain framework was therefore used to integrate the knowledge management and the upscaling aspects of

the programme. In addition, past reviews show that most countries in ECA do not exploit their huge potential to add value to their agricultural produce through agro-processing and vertical integration. Even in the relatively successful market-oriented horticulture, coffee and tea sectors, many countries in ECA still market their produce either in primary or semi-processed forms. Given this state of affairs, research is challenged to determine and address the main causes of this negative trend. In recent years, researchers have turned to the APVC framework as an approach that can be used to understand and address this and other issues related to input and output markets.

The APVC framework permits the analysis of the entire chain from production through marketing and utilisation of a given agricultural commodity. It facilitates the tracing of product flows, shows value additions at different stages from the production input and knowledge supply side to the output utilisation/demand side. Moreover, the framework enables the identification and analysis of key actors and their relationships at different stages in the chain, the enterprises that contribute to production, services and the required institutional support. It also facilitates analysis of bottlenecks that prevent progress and provides a framework for sector-specific intervention including identification of relevant stakeholders in programme planning.

Thus, adoption of the framework in knowledge management and upscaling achieves two things. First, it facilitates integration of knowledge management and upscaling in the development of the programme's strategy; and second, it provides a framework to use to respond to the issues concerning improvement of productivity, commercialisation and competitiveness of the agriculture sectors in the sub-region. Adoption of the APVC approach is therefore expected to position KMUS, and hence ASARECA, strategically to champion scaling up of agricultural technologies and innovations in the sub-region and to enhance its contribution to the objectives of CAADP and to the MDG targets on hunger and poverty.

3.3   Programme thematic areas and sub-themes

Analysis of the global, regional and national environments for knowledge management and upscaling and of the lessons drawn from RAIN and TUUSI were fundamental inputs in the formulation of the programme's thematic and sub-thematic areas of focus. The most important defining elements were the expanded mandate of ASARECA derived from CAADP Pillar IV which incorporated the issues of agricultural extension, advisory services delivery, and empowerment of farmers and their organisations. Other key issues that contributed to the identification of the programme thematic areas were the increasing quest for more innovative approaches for getting research into use at scale; the need for better mechanisms for sharing and utilisation of existing agricultural knowledge; and how to improve the value added and competitiveness of African agriculture, in particular application of the value chain framework in R&D.

Stakeholders acknowledged that whereas there was a growing interest in integrating the value chain concept into research for development, many practitioners lacked skills, competencies and adequate understanding of the framework to apply it efficiently. Thus, the APVC concept was a major defining factor for the programme concept, rationale and strategic direction. In addition, formulation of the thematic and sub-thematic areas was guided by several criteria. These included ensuring that themes and sub-themes were strategic and reflected the value added role of ASARECA; that they captured demand as articulated by stakeholders/clients of the programme; they provided for the harnessing of spillovers and had the likelihood of showing meaningful/beneficial results when implemented.

Overall, the programme is articulated as being more service oriented, aimed at providing services and knowledge products to other ASARECA programmes, especially the commodity oriented programmes and their NARS partners.

Three themes and six sub-themes were identified as strategic areas of intervention for KMUS (table 2). Details on the strategic themes and sub-themes are presented in sections 4, 5 and 6.

Table 2.   Programme themes and sub-themes

Strategic themes		Sub-themes	
1.0	Development of approaches and methods to make agricultural product value chains work	1.1	Development and implementation of appropriate approaches and methods for scaling up priority agricultural product value chains
		1.2	Identification, prioritisation and analysis of priority agricultural product value chains
2.0	Capacity development for agricultural product value chain actors	2.1	Strengthening institutional and organisational structures and processes for active participation in priority agricultural product value chains
		2.2	Development and implementation of appropriate skills and competencies for establishing, managing and scaling up priority APVCs
3.0	Managing knowledge in agricultural product value chains	3.1	Improvement of communication and sharing of demand driven regional agricultural knowledge
		3.2	Establishment and operationalisation of integrated regional knowledge acquisition and management systems

3.4   Integration with other ASARECA programmes

The programme has two strategic functions. The first is a research function to generate best practices in knowledge management and scaling up. A key output of the research function is to generate best practices in scaling up agricultural technologies. The knowledge generated would form the basis for the second function, which is largely a service one, facilitating sharing of the new knowledge and capacity development of stakeholders to support scaling up research outputs. The service function is the larger of the two programme functions and will involve close interaction with the other ASARECA programmes, which are the main constituents of this programme.

To a large extent, development of the broad project concepts, including the rationale and objective statements for the learning and support projects, will be done in close collaboration with the other ASARECA programmes and support units.

4 Development of approaches and methods to make agricultural product value chains work

4.1 Rationale

The renewed focus on agriculture and agribusiness as priority sectors for spurring economic growth in Africa has been accompanied by calls to develop value chains that integrate producers and markets to make the agriculture sector more responsive to consumer demands. Agricultural R&D practitioners have therefore adopted the APVC framework in their R&D interventions in the sector. The framework can be applied to research interventions in many of the objectives contained in CAADP Pillar IV, especially in technology dissemination and adoption. The methodology brings many concepts, instruments and techniques together in one process and presents them as an integrated whole (Kaplinsky and Morris 2001). However, its application in AR4D is fairly recent, at least with respect to stakeholders developing an in-depth understanding of the key concepts and acquiring the necessary skills and competencies to establish new value chain platforms or improve existing ones.

Adoption of the APVC framework to research, knowledge management and upscaling implies expansion of the research portfolio to components such as post-harvest processing, marketing and internalisation of consumer needs. This further involves working with different categories of players at various stages along the APVCs, from resources, production, processing, marketing to consumption. Stakeholders would need to understand the APVC framework and the necessary skills to implement and scale up value chains.

Through development of approaches and methods this thematic area can generate insights that can contribute to the objectives of CAADP pillars IV. The theme has the following two sub-thematic intervention areas:
1. Identification, prioritisation and analysis of priority agricultural product value chains.
2. Development and implementation of appropriate approaches and methods for scaling up agricultural product value chains.

4.2 Identification, prioritisation and analysis of priority agricultural product value chains

4.2.1 Challenges and strategic intervention areas

The APVC selection and analysis is a decision-making process used to determine and rank the potential competitiveness of a select group of value chains. Through this process APVCs are examined to understand key trends, structures, players, opportunities and challenges as well as critical factors that determine future prospects. This analysis provides a basis for choice of APVC in which to take action.

Some of the common challenges associated with APVC selection and analysis are discussed below.

Selecting the favourite enterprise/APVC of a donor agent or policy maker: This is a fairly common decision. It is usually based on an implementer's familiarity with a particular industry or on a policy-maker's preference. Depending on who benefits, it can result in sub-optimal growth and reduced impact on intended beneficiaries.

Selecting enterprise/APVC based on preferential but temporary trade policies: These result in decisions that quickly become outdated.

Selecting enterprise/APVC on the basis of poverty rather than on a growth focus: This involves selecting an APVC because it employs many poor people even though it has little or no potential for growth. This can also result in sub-optimal results. The compelling moral imperative to alleviate poverty often leads countries and donors to direct resources to support APVCs with little potential to sustain growth and incomes. This may produce immediate results but is unlikely to lead to sustainable poverty reduction.

Lack of broad impact: Selecting an APVC with high growth potential, but with little capacity to generate broad-based growth and employment.

Although APVC analysis has been shown to be an important tool for integrating efforts towards enhancing the performance of agriculture sectors, the concept has not been fully internalised in the ECA sub-region. In view of this, this sub-thematic area will address the following interventions:
1. Development, validation and implementation of appropriate approaches, methods and tools for identification and analysis of priority agricultural product value chains.
2. Formulation, validation and dissemination of promising intervention packages for making agricultural product value chains profitable and beneficial to all players.

4.3 Development and implementation of appropriate approaches and methods for scaling up agricultural product value chains

4.3.1 Challenges and strategic intervention areas

The major challenge to scaling up APVCs is largely about the approaches and methods for doing it. The value chain approach and, in particular, facilitating the development of new APVCs or improving the efficiency of existing ones is a relatively new area, at least in terms of understanding how this is done most effectively and also in having the competencies to manage, lead, and adapt value chain platforms towards mutually agreed objectives. Integrating new production and processing technologies into this process is one of the key objectives of upscaling. However, the overall intent is to create functional value chains which provide an incentive for farmer adoption of new technology. In this regard, other important objectives have to do with development of value added along the value chain which results in the potential for going to scale with the new technology and in the ability to enhance the welfare of actors all along the value chain. As already expressed, ECA countries are using development of value added as a key route to commercialisation of the agriculture sector and this sub-theme will provide insights into those objectives. However, the challenge from the point of view of R&D intervention is that different commodity value chains, different market conditions, and variations in farmer organisation will influence the kinds of interventions and the organisational

innovations within the value chain. These variables also influence the types of approaches that can be used, the skills and the competencies that would be required to facilitate the development of effective value chains. This sub-theme essentially focuses on maximising the learning from implementation of different commodity value chain projects within the ASARECA region so that both existing and future value chain projects are conducted more effectively and with a higher probability of success.

This sub-thematic area has two intervention areas. The first focuses on development and validation of approaches, methods and tools to develop best practice in the creation, implementation and scaling up of APVC. Validation of approaches involves monitoring, evaluation and generation of lessons. Thus, this intervention area focuses on developing effective monitoring, documentation and learning systems within value chain projects and using these to evaluate and generate best practice. This can include approaches for dealing with various areas or aspects along the value chain, for example, farmer organisation for improved access to input and output markets; the most effective extension methods; value addition; consumer awareness programmes; and market structure and demand analyses. However, in all these the principal focus will be on assessing approaches that focus on innovation within commodity value chains. Integral to the validation of approaches and methods is development and assessment of tools for monitoring the steps in the development and implementation of the value chain platforms and a monitoring system to evaluate outcomes within value chain innovation. In this way the sub-theme will be validating and assessing best practice which is a crucial anticipated result. The sub-theme will also be evaluating results across different value chains and different market contexts. Thus, the selection of priority APVCs on which to base the validation of approaches and for learning will be critical.

The second intervention area in the sub-theme is about promoting utilisation of the approaches and methods. This area naturally intersects with the first in terms of ensuring exposure to alternative methods, the formation of value chain platforms, facilitation skills, and evaluation of market chains and profitability constraints at different stages of an APVC. Effective facilitation of value chain platforms requires an adequate conceptual understanding, some basic analytical skills, and effective facilitation skills. Most of these skills will be attained through the implementation of the value chain projects, essentially learning-by-doing. However, developing a base of conceptual models and implementation methods can be provided through either seminars, workshops or other activities organised within a community of practice.

Ultimately, the success of this sub-thematic area rests on development of a regional community of practice; an initial assessment of approaches and methods in value chain development; and development of capacity of actors in value chain projects to utilise these approaches to scale up APVC. The success also depends on monitoring, learning and feedback that will expand and deepen the knowledge base of practitioners working in the field of value chain innovation. The research questions in this field are at the cutting edge of strategies for smallholder development within the value chain framework and in an African context. This sub-thematic area and indeed the programme should not lose sight of the research potential in this area. The potential gives it the advantage of being able to compare a range of value chains across very different market and institutional conditions. However, this will require development of an analytical framework that will inform the development of a monitoring system on project outcomes.

This sub-thematic area will address the following interventions:
1. Development and validation of appropriate approaches, methods and tools for scaling up priority regional agricultural product value chains.
2. Promotion of utilisation of appropriate approaches, methods and tools for scaling up priority regional agricultural product value chains.

5 Capacity development for agricultural product value chain actors

5.1 Rationale

Producer organisations such as farmer associations or cooperatives have been effective in empowering their members, especially smallholder farmers, to participate effectively in modern value chains in developing regions such as Asia and South America (FARA 2006; World Bank 2008). These organisations have enabled smallholders to organise collective action and in the process to address most of the disadvantages associated with their geographical dispersion and individual small-scale production. Through organising, smallholders can achieve economies of scale and reduce many of the transaction costs and risks that they individually face in product and output markets and, in turn, participate more effectively in the value chains they engage in.

Furthermore, producer organisations can give smallholders a political voice, enabling them to hold policy makers and implementing agencies accountable by participating in agricultural policy making, monitoring budgets and engaging in policy implementation. Such advocacy organisations, or farmer unions, may lobby local, national or regional policy makers on behalf of their members. Multipurpose organisations, particularly those at the community level, often combine economic, political and social functions. They provide farm inputs and credit to their members, process and market their products, offer community services and carry out advocacy activities. Therefore producer organisations are among the key value chain actors normally viewed as being on the demand side of the agricultural knowledge and information continuum.

Other important value chain actors are the agricultural services providers. They can be either public or private. The main public service providers include agricultural research, extension and training, and regulatory service institutions. The private service providers include non-governmental organisations (NGOs), input suppliers and marketers. Extension service providers play a vital role in facilitating access to and sharing of knowledge, technologies and agricultural information and also in linking farmers to other service providers. The extension service is therefore one of the critical actors in the value chains.

The focus of this theme is on enhancing the capacity of these different categories of actors to improve their participation in scaling up through the value chain framework. Two sub-thematic areas of intervention shall be implemented:
1. Strengthening institutional and organisational structures and processes for active participation in priority agricultural product value chains.
2. Development and implementation of appropriate skills and competencies for establishing, managing and scaling up priority agricultural product value chains.

5.2 Strengthening institutional and organisational structures and processes for active participation in priority APVCs

5.2.1 Challenges and strategic intervention areas

Producer/farmer organisations: Although smallholder farmers have moved to organise themselves into producer/farmer organisations, in ECA many of these organisations are weak, underdeveloped and suffer from challenges in organisational and technical capacities. They need to transform themselves into professionally organised entities able to empower their members to become key actors in the agriculture sector. The organisations need to be well functioning so that they can be instrumental in effective delivery of research, advisory, financial and business development services, and assure good access to input and output markets. Small-scale producers would be unable to achieve demand articulation, research agenda setting and collective marketing without well functioning producer organisations. Producer organisations need to attract, develop and retain competent human resources. The organisations in the sub-region must develop democratic systems and processes that prevent the possibility of elite capture and marginalisation of weaker members, especially small-scale producers and women farmers. Ultimately, producer organisations must transform themselves into learning and innovative organisations in full contact with external stakeholders and in tune with the demands of members at all levels of the organisation.

Agricultural extension service providers: For a long time, the extension services in most of ECA were dominated by the public sector and for a while yielded good results primarily as a result of new technologies being introduced, adequate funding and an elaborate set of farmer incentives such as ready markets, subsidised inputs, credit and relatively good infrastructure. However, this proved unsustainable and in the last two to three decades, public agricultural extension systems and services in most of ECA have been ineffective and in need of serious change in both organisation and approach. Some reorganisation has been ongoing in several countries in the form of institutional reform or restructuring and introduction of new approaches (Karanja and Ndubi 2004; Gemo and others 2005). As a result different forms of extension advisory service organisational arrangement and delivery approaches exist. For example, the training and visit system which was introduced in Kenya in the mid-1970s; multi-stakeholder involvement or pluralism in extension advisory provision; and a more recent push for private extension and the agricultural innovation system. There is no doubt that different models would be most effective or appropriate in different settings and circumstances, while others might be more cost effective than others. However, very little is known or understood about these and other possible trade-offs between these and possible newer models. Such knowledge is crucial to extension managers, policy makers and other practitioners to make informed decisions in the ongoing evolution of agricultural extension and advisory services in ECA.

In order to address the above challenges in the context of scaling up proven technologies through value chains, the following intervention strategies shall be implemented:
1. Strengthening farmer institutions to participate effectively in agricultural product value chains.
2. Strengthening service providers along the value chain to participate effectively in agricultural product value chains.

5.3 Development and implementation of appropriate skills and competencies for establishing, managing and scaling up priority APVCs

5.3.1 Challenges and strategic intervention areas

Major changes are taking place in agricultural markets globally, regionally and nationally. The liberalisation of markets in many developing countries, including the dismantling of state-controlled marketing boards, has resulted in increased competition. The rise of international specialty value chains has provided impetus for the formation of new producer organisations. Fair trade arrangements result in a premium price only for farmers who are organised. The growth of supermarkets as major outlets for agricultural products has led to the restructuring of supply chains, because supermarkets tend to work with preferred suppliers who can offer products of high volume and consistent quality. As individual producers are hardly ever large enough to supply all the stores in a supermarket chain, organisations must collect, sort, grade and perform quality control of products from different producers.

The sector is dominated by smallholders, with a large number of widely disbursed producers and fragmented production. Intervention efforts aimed at building technical skills and competencies must therefore target farmer organisations and trade associations to achieve economies of scale and improve efficiency in participating, managing and upgrading APVCs.

The increasing globalisation of agricultural markets presents smallholders in ECA with a considerably more complex business environment. They must not only produce more efficiently, but they also have to contend with far more logistically complex and competitive markets. Growing specialisation in distribution channels and logistics; rapidly changing and differentiated consumer preferences; and increasingly complex norms, standards, and other technical specifications place increasing demands on the production and management skills of the average smallholder.

To facilitate the development and implementation of appropriate competencies for establishing, managing and scaling up priority value chains, the following intervention strategies shall be implemented:
1. Identification and prioritisation of skills and competencies required to establish, manage and scale up priority agricultural product value chains.
2. Development of capacities for key players to establish, manage, upgrade and scale up priority agricultural product value chains.

6 Managing knowledge in agricultural product value chains

6.1 Rationale

Knowledge management in all aspects of the agriculture sector is fundamental to its success. Essential aspects of knowledge and information for the sector should cover the entire value chain from production to consumption. This includes information on production systems, the production resource base and the marketing-distribution systems.

The need and importance of effective coordination, collaboration and networking in the management of knowledge and information among sectors, institutions and different stakeholders is well articulated in national policies and planning documents of most ECA countries. This is more specific on management and utilisation of agricultural knowledge, given the important role agriculture plays in national development and the fact that no single organisation on its own can tackle all the challenges and constraints facing the sector.

Poor coordination and lack of harmony in knowledge management within the sector can lead to duplication of efforts and consequent wastage of resources. Good coordination in management of agricultural knowledge, networking and collaborative arrangements among different stakeholders in the agriculture and related sectors both at national and sub-regional levels can lead to value addition and expansion of knowledge within the sector. Such coordination requires good knowledge management and information systems and infrastructure.

In an agricultural knowledge management and information system for innovation, people and institutions are linked together in order to promote and enable mutual learning, and to generate, share and use knowledge, including indigenous knowledge, skills and information.

In a value chain perspective, the system should integrate all stakeholders involved in the production-to-consumption continuum. The knowledge management and information systems should systematically connect stakeholders and institutions to the knowledge they need to exploit opportunities or address challenges. The systems should support the creation or acquisition, synthesis and sharing of knowledge and information and promote its utilisation, learning and scaling up.

In order for the knowledge that already exists or that is being generated by NARS in ECA to be effectively utilised to promote innovation and agricultural productivity, good ICM systems are critical. Such systems include modern ICTs.

In the ECA countries, ICM issues are considered under various policies and legislations. These policies and legislations provide frameworks for implementing systems for sharing agricultural knowledge and identify the need for developing measures aimed at promoting access to information. However, lack of institutional ICT strategies which set clear goals, priority actions and plans, and identify the required resources, hamper inter-institutional sharing of agricultural knowledge.

To facilitate effective agricultural knowledge management in agricultural product value chains in the ECA sub-region, the following sub-thematic areas of intervention shall be implemented:

1. Improvement of communication and sharing of demand driven regional agricultural knowledge.
2. Establishment and operationalisation of integrated regional knowledge acquisition and management systems.

6.2 Improvement of communication and sharing of demand driven regional agricultural knowledge

6.2.1 Challenges and strategic intervention areas

The low absorption of modern technology has been identified as one of the main constraints to agricultural growth in the ECA sub-region. Inadequate research–extension–farmer linkages, limited demand driven research results and limited affordable credit have been indicated as some of the major factors contributing to this situation. However, there is evidence from other parts of the world to suggest that this is only a small part of the reason. Knowledge, rather than physical resources, has been shown to be a major controlling factor of APVCs and the resultant benefits. Well developed agricultural research infrastructure should therefore create a knowledge base to spur innovations, investments and credit availability. To do this, the system should aim at first changing the mindset from the restricted researcher–extension–farmer dissemination approach to a more holistic knowledge management and sharing system.

The major challenges to agricultural development are lack of proper organisation, distribution and sharing of agricultural knowledge. These challenges are the result of lack of appropriate mechanisms for content development; lack of defined procedures to guide knowledge collection and processing; absence of defined mechanisms for knowledge and information sharing; and lack of information management standards that define compatibility and security of preserved data.

The current available policies and legislation are inadequate to deal with the acquisition, management and sharing of agricultural knowledge. This justifies the need for a comprehensive policy, legal and regulatory framework to facilitate development, investment and application of ICT as well as R&D in ICT and intellectual property issues. This framework should, among other things, spell out laws and policies on information content development, availability and accessibility. The framework should also enhance the provision and sharing of ICT infrastructure and facilities; development of institutional ICT policies and strategies including e-agriculture and human resource capacity to utilise ICT; and promote electronic publishing, collection and preservation of local materials, while encouraging the development and management of information and knowledge resources as a national and regional heritage.

This sub-thematic area of intervention, therefore, will focus on development of appropriate strategies/mechanisms to facilitate national and regional agriculture sector related ministries and institutions to enhance the adaptation, adoption and effective utilisation of knowledge, information and technology with particular attention to relevance, language, accessibility, timeliness and reduction of costs, and risks of adopting them. This sub-theme builds on the need for a regional community of practice that can provide a regional learning space for practitioners in different agricultural knowledge, but especially for sharing best practices. Developing a community of practice depends on the density of

work in the area of value chain innovation and within ASARECA this currently consists of two projects within DONATA. However, there are other similar initiatives underway in the region in programmes such as Research into Use, Farm Concern International, Technoserve, and some of the CGIAR centres with programmes in the region. Currently, little interaction takes place between projects across these institutions, hence the potential for the significant mutual learning across different institutions within a regional framework. ASARECA has therefore, through this programme, the potential to initiate such a regional community of practice. The lack of interaction potentially points to some competition between these institutions in this emerging area and ASARECA, as a sub-regional organisation, is best placed to facilitate collaboration, networking in a way that allows harnessing of synergies, and mutual sharing of experiences.

In addition, the sub-thematic area of intervention will focus on ensuring that appropriate mechanisms are introduced to facilitate constructive engagement of communication stakeholders from the agriculture sector in problem identification, priority setting, planning, implementation, and monitoring and evaluation of communication intervention strategies. Improvement of communication and sharing of demand driven regional agricultural knowledge will be delivered using the following sub-thematic intervention strategies:

1. Identification and development of agriculture sector knowledge products, services and communication pathways to meet the needs of different stakeholder categories.
2. Development and implementation of institutional collaboration and partnership arrangements for developing, managing and sharing knowledge management capacities.
3. Analysis and advocacy for enabling agricultural knowledge sharing policies and legal frameworks.

6.3 Establishment and operationalisation of integrated regional knowledge acquisition and management systems

6.3.1 Challenges and strategic intervention areas

The success of KMUS shall not be measured only by how many communication products/activities or training programmes it has organised, but also by whether it has created a sustainable network, platform or community of practice for those involved in the generation, acquisition, management and utilisation of agricultural knowledge. This will entail establishing a strong and well supported mechanism to act as a catalyst for ensuring dialogue, negotiation, joint planning and implementation and sharing of knowledge and capacity among public and private sector institutions, communities and individuals across the ECA sub-region.

Human resource development in the agriculture sector related ministries and institutions in ECA has not been needs driven, resulting in deficiencies in human resources capacity. In most of these institutions, human resource development has been characterised by undetermined training needs, inadequate ICT training programmes, lack of coordination in capacity development and insufficient monitoring and evaluation of training undertaken. In view of this, the capacity of these ministries and institutions must be strengthened to develop, institutionalise and sustain functional and effective ICT human resource development policies and plans for training and career development geared towards improving the individual person, the group and the overall organisational effectiveness.

In a situation of declining funding, no single organisation can afford to acquire and maintain sophisticated facilities or to misuse or underuse available facilities. In view of this, additional financial resources must be acquired to develop and manage knowledge management infrastructure and facilities. In addition, available infrastructure and facilities in the agriculture sector related ministries and institutions must be well documented and widely known among the institutions. This will provide an opportunity for designing and implementing a strategy for sharing some of the infrastructure and facilities among the sector institutions.

Given the above state of affairs, this sub-thematic area of intervention shall focus on addressing the critical constraints to coordination, networking, collaboration and partnership so that the communication components of the agriculture sectors of the ECA countries function as a truly national and regional mechanism that is effective and efficient in promoting and facilitating agricultural knowledge and information sharing.

In view of this, the establishment, operationalisation and coordination of an integrated system for acquisition and management of agricultural knowledge shall be delivered by the following intervention strategies:

1. Development and operationalisation of efficient knowledge generation, collection, processing, storing and access systems.
2. Development of human and infrastructure resources for effective agricultural knowledge management.

7 Strategy implementation arrangements

7.1 Programme governance and management

The programme governance and management will be based on policies and procedures in the ASARECA Operational Manual. Three levels of programme governance and management exist. At the highest level is the ASARECA Board of Directors which formulates policies that govern the programme and provides oversight to its activities. The second level is the office of Deputy Executive Director of ASARECA. This office heads all the seven programmes of ASARECA. It will provide supervision into programme governance and management. The third level is the programme management unit, comprising the Programme Manager and a Programme Assistant. The programme management unit will provide leadership to the development and implementation of all the projects that will be contracted through this programme. The Programme Manager will specifically:

- Provide a mechanism for regional coordination to harmonise projects and activities.
- Develop and implement fund-raising strategies and activities for operationalising the KMUS strategy.

The programme management unit will be supported by the technical, financial, administrative and information management units of the ASARECA Secretariat. However, occasionally the unit will contract and use inputs from eminent professionals in fields relevant to knowledge management to provide technical advice of a strategic nature to ensure that the programme strategic direction and interventions being implemented remain strategic and relevant, and contribute to the objectives of ASARECA. A stakeholder forum may also be organised when necessary to assist the programme to review the strategy and priority setting in response to new and emerging challenges and opportunities.

As noted above, ASARECA rules and procedures contained in the operational manual such as the competitive grants scheme (CGS) will guide the implementation of regional projects. Projects will be implemented by teams forming a coalition of partners whose composition will include NARS scientists, NGOs, extension service, private sector, policy makers and civil society organisations. The project teams will be led by project leaders who may be engaged full time or part time. Engagement will be guided by balancing between region, complexity of the issue, field specificity and competencies required. Project leaders will be recruited regionally and will work under the coordination of the Programme Manager. Most of the projects implemented under this strategy will be designed to run for at least three years to generate the desired outcomes.

7.1.1 Commissioning of projects

The projects implemented by KMUS will be of sub-regional significance to deliver sub-regional public goods. ASARECA has developed two comprehensive and transparent procedures for commissioning projects: CGS and direct commissioning. CGS is expected to provide an opportunity to all NARS to compete for research grants, fostering new partnerships. This procedure of commissioning projects shall be used where there is a pool of adequate capacity in the sub-region to address the research issue under

consideration. The CGS procedure shall be implemented through calls for proposals where it is felt that the activity concerned can be implemented by member institutions depending on the soundness of the submitted proposals. In this case, the programme shall prepare a call for proposal detailing the research issue to be addressed and the criteria to be used in selecting the implementers for the research. The call shall then be announced in all member countries using various avenues so as to attract as many proposals as possible. The proposals received shall then be selected in a competitive and transparent manner using set criteria.

Direct commissioning, however, shall be used where it is felt that the skills needed to implement a particular activity may not be readily available in the member institutions and therefore the need to target specific individuals with the requisite skills for implementing such an activity. In this case, the programme will prepare the terms of reference and invite short-listed individuals or organisations to implement the activity as per agreed terms and conditions.

7.2   Integration of cross-cutting issues

Inequalities exist in both the social and economic roles of men, women, boys and girls, people affected and infected by HIV/AIDS and other vulnerable stakeholder groups in relation to development. Consideration of socio-cultural and socio-economic differences of men and women is both a gender and a human rights issue. Traditional interventions in agricultural development are therefore likely to affect men and women differently. Gender and HIV/AIDS issues are critical if agriculture is to thrive in the ECA sub-region. This is because women, who form the majority of the people who work on farms, do not own the land and other factors of production and are always disenfranchised when it comes to benefiting from their efforts in farming. The youth, both boys and girls, have lost interest in agriculture. Gender mainstreaming is therefore critical to the success of smallholder farming in ECA. Furthermore, HIV/AIDS continues to ravage farming communities leaving a trail of both infected and affected farmers. Those who are infected have to take time off work when they are ill, while those who are affected spend much time caring for the infected at the expense of productive time on farms.

ASARECA has developed an Environmental Management Framework to guide the Association and its partners in ensuring that the activities implemented do not undermine environmental sustainability. Compliance with the provisions of the framework is part and parcel of the project commissioning procedures both for CGS and direct commissioning. In view of this, all commissioned projects under this programme will be expected to mainstream the cross-cutting issues of environment, HIV/AID, gender, and drug and substance abuse.

7.3   Collaboration and partnerships

ASARECA and the programme recognise the significant role of each stakeholder and industry player in agricultural research, knowledge management and scaling up of technologies and innovations. Therefore KMUS will strive to nurture an organisational culture that puts a premium on scientific achievement, service delivery and capacity for effective teamwork and collaborative partnerships that should be reflected at all levels of programme operations. This culture shall be strengthened using modern project management approaches and a participatory system of monitoring, evaluation and learning that shall provide constant feedback to the programme management on progress towards achievement of mutually agreed targets. Every aspect of agricultural knowledge management and

scaling up of technologies and innovations shall be undertaken in collaboration with stakeholders facilitated by establishment of necessary structures and frameworks for effective collaborative engagement with other relevant national, regional and international institutions.

7.4   The programme operational plan

This five-year strategic plan covers the period 2009–2014. To operationalise the strategic plan, KMUS shall develop a detailed operational plan covering the same period. In developing the operational plan, the programme will engage its regional stakeholders in formulating intervention strategies for delivering the programme level strategic results, mission and vision. Efforts will be made to take into account the sub-regional agriculture sector development aspirations based on contemporary and critical analysis of current and emerging challenges and opportunities as well as the prevailing social, economic and political environments.

The operational plan shall be operationalised through rolling annual work plans which shall specify activities and their respective milestones that are required to deliver the yearly targets. The adoption of the rolling annual work plans approach is expected to facilitate annual review of ongoing activities in close consultation with the relevant key stakeholders and adjustment of the activities in the context of emerging priorities and funding opportunities. The annual work plans shall be expected to provide full details on the outputs and their respective intervention strategies, activities, milestones, operational budgets and the implementing countries, institutions and organisations.

7.5   Resource mobilisation strategies

The implementation of this strategy will be facilitated by funds from three main sources:
1. **Core funding**: ASARECA will provide the funds to run the core activities of this programme. These activities will include operational costs, monitoring and evaluation, impact assessment, periodic project and programme reviews and short-term consultants. ASARECA will also provide funds for research projects that will be developed through the CGS.

2. **Leveraged funding**: Where partner institutions are in a position to make monetary and non-monetary contributions to specific projects, these will be designed to accommodate such contributions. This will include staff time, research, and training materials and facilities based on agreed terms.

3. **Project funding**: The purpose of this is to fund raise for implementation of programme interventions. These funds will be sourced through research and development project proposals that address the strategic interventions outlined in the strategy.

The most critical strategy for mobilising resources for this programme is to enhance its image as an efficient, effective and relevant regional mechanism for producing deliverable results and adding value to agricultural knowledge management and scaling up of technologies and innovations. Besides this, the programme has to develop and maintain a reputation as an effective unit with unquestionable credibility and reputation. Some of the resource mobilisation strategies available to the programme are:
•   Establishing CGS for projects on a specific strategic intervention area and exploring the possibilities of acquiring contributions from the participating country NARES and development partners to finance the scheme.

- Building the capacity of participating and collaborating research scientists, farmer organisations and other institutions to raise funds through writing joint research proposals that target identified CGS.
- Establishing beneficial links with regional and international programmes and other global funding facilities supporting research for development.
- Developing multi-country and institutional consortia to formulate projects on behalf of the programme to deliver its sub-regional agenda and obtain funds for their implementation.
- Entering into twinning agreements with development programmes to coordinate their knowledge management and scaling up of technologies and innovations and capacity building activities.
- Lobbying for institutional contribution in kind to funded projects where participating institutions can, for example, provide staff time, land and research and training facilities to the programme projects at reduced or no cost.
- Leveraging funds that have already been allocated to support the programme agenda through, for example, the implementation of some aspects of the programme priority activities through graduate students who are already sponsored with research bursaries.

7.6   Monitoring and evaluation

To institutionalise the monitoring and evaluation process, the programme shall develop and operationalise a suitable monitoring and evaluation system capable of tracking the implementation of the approved projects and activities. The monitoring and evaluation system shall include the use of result frameworks, work plans, field/site visits, semi-annual and annual reports, mid-term internal evaluation and end of term external evaluation. The programme monitoring and evaluation system will also be used to mentor and backstop projects by including the use of short term technical consultancies. This will be a critical mentoring input, especially for the learning and support projects.

The programme monitoring and evaluation plan shall be built on the principles of the overall ASARECA monitoring, evaluation and performance plan. To fit into the overall ASARECA monitoring and evaluation system, the programme has aligned its logical framework with the ASARECA logical framework. In order to ensure better outcome mapping and impact orientation, the ASARECA level results have been cascaded down to the programme level, but reduced in both scale and scope to the programme's specific area of interest. Given the programme's strategic focus and orientation, it shall be expected to contribute to ASARECA result 2 on facilitation of generation and uptake of technologies and innovations; result 4 on strengthening capacity for gender responsive AR4D in ECA; and result 5 on enhancing the availability of information on agricultural innovations.

The abridged versions of project semi-annual reports from the implementing institutions and collaborating partner organisations will inform the programme annual reports which will in turn feed into the mid-term internal evaluation. The results of the mid-term evaluation will assist in the external evaluation whose results will form a major input in the preparation of the subsequent programme work plans. The outputs of all programme activities undertaken will be consolidated into annual reports and shared with stakeholders and collaborating organisations. In addition, all data captured will be appropriately processed and stored for ease of retrieval and will form the basis for subsequent impact evaluation of projects.

7.7 Assumptions and risks in implementation

KMUS is a cross-cutting programme with research and supportive functions. It aims to provide knowledge products and services to the other research programmes, especially the commodity-oriented ones and their partner NARS. Creating functional links and strategies for harnessing and exploiting synergy between this and the other programmes is one of the key assumptions that underlie successful implementation and delivery of desired results. Strong links between this and other ASARECA programmes will be important, especially during conceptualisation and development of research projects. Failure to achieve this linkage will result in the risk of not achieving optimum results.

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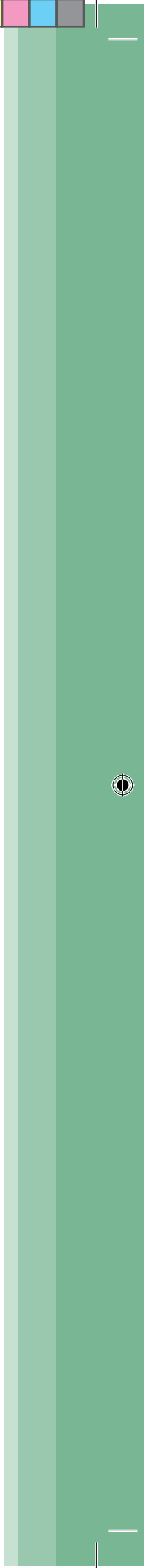# Annex 1. Knowledge Management and Upscaling Programme Logical Framework Matrix (2009–2014)

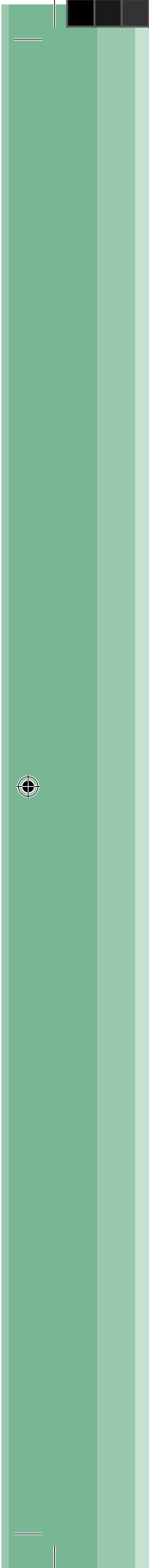| Objective statement	Verifiable indicators	Means of verification	Assumptions
Goal			
Enhanced sustainable productivity, value added and competitiveness of the sub-regional agricultural system	% increase in yield of selected crops % increase in labour productivity % decrease in production costs of selected commodities % increase in volume of processed agricultural products % increase in value of agricultural output 4% annual growth rate in TFP (*target in FAAP document*)	– Government statistics – Economic Commission for Africa statistics and reports – FAO statistics – COMESA and other regional organisation reports – Selected CGIAR reports and publications – External evaluation and impact assessment reports	– Relevant regional and national policies are implemented – Governments continue to support agriculture and poverty reduction as priorities – Equitable distribution of benefits occurs – Agricultural transformation occurs in ECA occasioned by technical change
Purpose			
Enhanced utilisation of agricultural technologies and innovations in Eastern and Central Africa	*The number of farmers, processors, and others who have adopted new technologies (FAAP Indicator)* 1. % increase in adoption of improved agricultural technologies and management practices s in selected development domains in ECA *The area under new technologies/number of improved animals (FAAP Indicator)* 2. % increase in area under improved agricultural technologies and management practices in selected development domains 3. % increase in number of improved livestock breeds	– ASARECA impact evaluation reports – External evaluation and impact assessment reports. – ASARECA and programme reports. – COMESA reports – East African Community reports – ILRI, SAKSS reports – FARA reports	– Presence of effective innovation platforms in ECA – Availability of appropriate technologies and inputs – Targeted financial services for agriculture exist – Appropriate knowledge and technology delivery mechanisms operational – Functional agricultural advisory systems in place – Efficient marketing systems in place

Objective statement	Verifiable indicators	Means of verification	Assumptions
Results/outputs			
1. Uptake of demand driven agricultural technologies, approaches, knowledge and information catalysed	1.1. Number and types of best-bet gender responsive approaches or mechanisms for scaling up technologies developed by 2014 1.2. Number and types of best-bet gender responsive approaches or mechanisms for scaling up available to uptake pathways by 2014 1.3. Number of women, men farmers and other end users in selected countries of ECA practising/applying improved technologies by 2014 1.4. Number and types of improved technologies in uptake pathways by 2014	– Programme strategy and priority setting documents – ASARECA and programme performance progress reports – ASARECA and programme technical reports – Projects evaluation and other reports – Statistics from programme website	– Partnerships with adequate capacity for generation and uptake of technologies and innovations exist – Adequate human, physical and financial resources are maintained within NARS and other partners – Government, non-government, regional and national organisations operate effectively at appropriate levels.
2. Capacity for scaling up agricultural technologies, knowledge and information in ECA enhanced	2.1. Capacity gaps in scaling up agricultural technologies knowledge and information identified by 2012 2.2. Number of women, men farmers and other end-users in selected countries of ECA trained on improved technologies by 2014 2.3. Number and types of agricultural service providers in ECA strengthened by 2014 2.4. % of identified priority capacity building needs addressed by 2014	- do -	- do -

Objective statement	Verifiable indicators	Means of verification	Assumptions
3. Availability of information on agricultural innovation enhanced	3.1. Programme communication strategy developed by 2012. 3.2. Number of developed knowledge products and services by 2014 3.3. Number of developed and utilised pathways for communicating knowledge products and services to different stakeholder categories 3.4. Number of stakeholders accessing/reached with knowledge products and services by 2014	- do -	- do -