ASSOCIATION FOR STRENGTHENING AGRICULTURAL RESEARCH IN EASTERN AND CENTRAL AFRICA

KNOWLEDGE MANAGEMENT AND UPSCALING PROGRAMME

STRATEGIC PLAN 2009 - 2014

"Turning Agricultural Knowledge into Action"

SEPTEMBER, 2009

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ACRONYMS AND ABBREVIATIONS

A-AARNET	ASARECA Animal Agriculture Research Network
AFAAS	African Forum for Agricultural Advisory Services
AHI	African Highlands Initiative
AICM	Agricultural Information and Communication Management
ANAFE	African Network for Agriculture, Agroforestry and Natural Resources Education
AREEs	Agricultural Research, Extension and Education institutions
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAADP	Comprehensive African Agricultural Development Programme
GFAR	Global Forum on Agricultural Research
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
DONATA	Dissemination of New Agricultural Technologies in Africa
EAPGREN	East African Plant Genetic Resources Network
ECABIO	Eastern and Central Africa Biotechnology and Biosafety Network
ECABREN	Eastern and Central Africa Bean Research Network
ECAPAPA	East and Central African Programme for Agricultural Policy Analysis
FAAP	Framework for African Agricultural Productivity
FAO	Food and Agriculture Organization
FARA	Forum for Agricultural Research in Africa
FOODNET	Post-harvest Processing Network
HIV/AIDS	Human Immuno-deficiency Virus/Acquired Immune-deficiency Syndrome
IARCs	International Agricultural Research Centre
IAR4D	Integrated Agricultural Research for Development
ICT	Information Communication Technology
ICU	Information and Communication Unit
IEHA	Initiative to End Hunger in Africa
IFPRI	International Food Policy Research Institute
KAINet	Kenya National Agricultural Information Network
MDGs	Millennium Development Goals
NARES	National Agricultural Research and Extension Systems
NARI	National Agricultural Research Institutes
NARS	National Agricultural Research System
NGOs	Non Governmental Organizations
RAIN	Regional Agricultural Information Network
RAILS	Regional Agricultural Information and Learning System
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
TOFNET	Trees on-Farm Network
TTP	Technology Transfer Project
TUUSI	Technology Uptake and Up scaling Support Initiative
USAID	United States Agency for International Development

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) was established in September 1994 and comprises 10 member countries: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda. The primary aim was to promote efficiency through attainment of economies of scale and sharing of resources for tackling 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 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 2007-2016). 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). Aiming 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 through:

- The identification of shared goals and the promotion of economies of scale and scope through collaboration, specialisation and sharing of results

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

ASARECA has seven new programmes. These are:

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.

What is presented in this document is the strategy and priorities for the ASARECA Knowledge Management and Upscaling Programme. They were developed through participatory processes that involved all ASARECA member NARIS and key stakeholders. I would like to thank Dr. Lydia Kimenye, Programme Manager, Knowledge Management and Upscaling and all our stakeholders for having worked hard to enable ASARECA define its future direction and priorities in the context of the sub-regional Knowledge Management and Upscaling.

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EXECUTIVE SUMMARY

1.0 Introduction

1.1 The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) has developed a new strategic plan covering the period 2007-2016. The review was necessitated by the need to take on board 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 inline 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 operationalize the new strategic plan, ASARECA has formulated an operational plan covering the period 2008-2014.

1.2 As a sub-regional organization, ASARECA is committed to contribute 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 that led to the expanded mandate 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 rationalization of the former 17 regional networks (NPPs) to seven programmes so as to improve efficiency and effectiveness in the implementation of an increased portfolio of sub-regional priority research areas.

1.3 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 into 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 of emerging approaches for upscaling knowledge and technologies. In addition, a need for greater integration of ASARECA's technical portfolio was highlighted as critical for harnessing synergy of programmes and for providing support in cross-cutting thematic issues such as up scaling, policy and natural resource management to commodity oriented programmes.

1.4 The Knowledge Management and Upscaling Programme was established as one of the seven research programmes and mandated to address technology uptake and upscaling and knowledge management. The Programme was further designated the responsibility of implementing the elements in CAADP pillar IV that deals with technology dissemination and adoption, agricultural extension, education and training and farmer empowerment.

1.5 In preparing this strategic plan, the Knowledge Management and Upscaling programme 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 organizations; 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 ASARECA's contribution to CAADP objective of achieving 6% growth in agriculture per year by 2015.

2.0 Uptake and Upscaling of Agricultural Knowledge

2.1 Many organizations 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 the research knowledge. The challenge of bridging the gap between generation and utilization of research information can be addressed through production of targeted agricultural knowledge and delivered through appropriate communication channels.

2.2 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; institutionalization 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 to make people with similar interests collaborate, seek and share knowledge. In eastern and central Africa (ECA) effective knowledge management is hampered by the following challenges:

- Inadequate analysis of agricultural sector communication stakeholders, their knowledge needs, attitudes and practices to knowledge management;
- Poor identification of the agricultural sector actual and anticipated knowledge products and services;
- Inadequate mechanisms for capturing, systematizing and sharing available knowledge;
- Use of ineffective media and channels for communicating with different stakeholders;
- Weak monitoring and evaluation of knowledge management systems

2.3 Scaling up best-bet agricultural technologies is a process of efficiently increasing the socioeconomic 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 of agricultural knowledge and technologies. However, there are many challenges to scaling up. The following have been identified as key challenges to scaling up of proven agricultural technologies in ECA:

- Limited recognition of the role of 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 utilization of agricultural knowledge;
- Inadequate budgets for promotion of uptake and scaling up;
- Inadequate capacity in promotion of uptake and scaling up;
- Failure to link reward and incentive systems to impact
- Capacity weaknesses
- Insufficient end-user involvement
- Ineffectiveness in the extension systems and the technology dissemination processes.

2.4 The formal extension system in most of the ECA countries has remained the weakest link in the research-extension-farmer continuum. Because of this, 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 organizations 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

3.0 Integration of Knowledge Management and Upscaling

3.1 The Knowledge Management and Upscaling Programme was created from two past initiatives of ASARECA namely, the Regional Agricultural Information Network (RAIN) and 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 as fuel that drives 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.

3.2 The value chain framework permits the analysis of the entire chain from production through marketing and utilization of a given agricultural commodity. The APVC

framework traces product flows, shows value additions at different stages from the production input and knowledge supply side to the output utilization/demand side. It 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. 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 to compete and to improve earning opportunities. It also enables identification of relevant stakeholders for programme planning.

4.0 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 pro-activeness 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

5.0 Programme Level Results

5.1 The Programme has identified three strategic results and aligned them to the ASARECA level results as follows:

Result 1: Uptake of demand driven agricultural technologies, approaches, knowledge and information **catalyzed.**

Result 2: Capacity for demand driven agricultural advisory services and knowledge management in ECA **enhanced.**

Result 3: Availability of information on agricultural innovation **enhanced.**

5.2 The results are designed to position the Programme strategically as a key driver for increasing productivity, commercialization and competitiveness of the agricultural sector of the ECA sub region. The strategic result areas are also aimed at positioning the Programme as a regional reference point in agricultural knowledge management and upscaling.

6.0 Programme Thematic Areas and Sub themes

6.1 Three thematic areas of intervention and six sub themes 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 (APVCs).

1.2 Identification, prioritization and analysis of major regional APVCs.

2.0 Capacity development for agricultural product value chain actors.

2.1 Strengthening institutional and organizational structures and processes for active participation in priority APVCs.

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 operationalization of integrated regional knowledge acquisition and management systems.

7.0 Strategy Implementation Arrangements

7.1 ASARECA and the Programme recognize 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 organizational 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 by the use of 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.

7.2 To operationalize the Strategic Plan, the Programme shall develop a detailed Operational Plan covering the same period. The Operational Plan shall, in turn, be operationalized through rolling annual work plans in which the necessary and sufficient activities and their respective milestones required to deliver each yearly targets shall be specified. The adoption of the rolling annual work plans approach is expected to facilitate annual review of the on going 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 organizations.

7.3 The programme shall develop and operationalize a suitable monitoring and evaluation plan capable of tracking implementation of the approved projects and activities. The programme monitoring and evaluation 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.

1.0 BACKGROUND

1.1 The Sub-regional Economic Performance

Virtually all the economies of the 10 countries in ECA sub-region are agriculturally based, with nearly 70% of its people relying heavily on agriculture for their livelihood either as primary producers, or as traders, marketers and from engagement in the agro-industry. Agriculture accounts for about 43% of regional GDP. Thus, performance of the agricultural sector is critical for economic growth. Furthermore, given that most of the over 280 million people of the region's population pursue agricultural-based livelihoods, the performance of the sector does have significant implications on efforts to reduce poverty and on livelihoods as a whole.

Despites 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 (FAO) statistics show that the yields of most of the crops and livestock are far below the global and the Africa means. For example, maize a major staple crop in ECA, has an estimated yield of 1.39 MT/ha compared to a global mean of 4.47 MT/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, especially in the smallholder sector is indispensable.

1.2 Global and Regional Initiatives

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

At continental level, the African Union/New Partnership for African Development (AU/NEPAD, 2005) 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. The Programme is a commitment of the African countries, individually and collectively, to the MDGs. The programme known as the Comprehensive African Agricultural Productivity Programme (CAADP) defines AU/NEPAD's vision of the continent's agricultural productivity and growth. The vision recognizes that improvement of agricultural productivity will require addressing a number of critical challenges such as climatic variability, poor rural infrastructure, unsupportive policies and weak capacity, institutional and regulatory frameworks affecting agriculture.

The CAADP offers a platform for joint action by African governments, regional organizations, farmers, private agribusiness and development partners to accelerate growth and eliminate poverty and hunger in African. 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 mutually reinforcing four 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 agricultural 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 ECA

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) was established in September 1994. It is a non-profit, non-political organization 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), form the Forum for Agricultural Research in Africa (FARA). The ASARECA member countries include 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 ten 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 organization, ASARECA is responsible for providing leadership in the implementation of CAADP pillar IV in eastern and central Africa. The main objective of the Association is to promote regional economic growth by facilitating development, introduction 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 of the region.
- Improve the delivery of new appropriate information and technology.

1.3.1 ASARECA's 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 the need to take on board emerging challenges and new developments in the sub regional agriculture for development

environment. The new strategy is designed to position ASARECA strategically as a key driver in improving the contribution of the sub regional agriculture in the attainment of MDGs targets on hunger and poverty and the AU/NEPAD Africa-wide vision for agricultural transformation. It has also incorporated new areas in ASARECA's 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, specialization and sharing of results. ASARECA has realigned its agenda to support agricultural development in an approach that recognizes 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 do not have major impacts on overall economic growth or poverty without growth in major staples.
- Investments that promote marketing and productivity growth in non-agricultural sectors are important for realizing the potential in agriculture.

ASARECA's 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".***

In order 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 Framework for African Agricultural Productivity (FAAP) spirit 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 which is ***"Enhanced utilization 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 the following five necessary and sufficient 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 agricultural 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 Rationalization of Networks to Regional Programmes

As a sub-regional organization, 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 as well as 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 rationalization of the former 17 regional networks to seven programmes so as to facilitate the implementation of large portfolio of priority projects of sub regional relevance and reduce management complexity as shown in Table 1.1.

Table 1.1 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	BIO-TECH and EAPGREN
5. Natural Resource Management and Biodiversity	TOFNET; SWMnet; and AHI
6. Policy and Advocacy	FOODNET and ECAPAPA
7. Knowledge Management and Upscaling	TUUSI and RAIN

1.3.3 ASARECA's Operational Plan

Following the development of the new strategy and through wide and intensive consultative and participatory process, ASARECA has formulated an Operational Plan (OP) for the period 2008-2014 to operationalize the new strategy. The OP outlines research programmes and their aims as well as the key changes to research, management and governance structures and systems that are necessary and sufficient for delivering its mandate. The OP also shows how ASARECA collaborates with other relevant initiatives and what the association aims to deliver during the implementation period. In particular, the OP 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 OP is underpinned by the following five key principles:

(i) ***Delivery****:* The OP seeks to dramatically improve the delivery of ASARECA's 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.

(ii) ***Subsidiarity****:* Wherever and whenever possible, authority, responsibility and accountability will be delegated to the lowest level at which it is effective while maintaining spill over effects.

(iii) ***Institutional learning****:* Setting up 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.

(iv) ***Transparency****:* Stakeholder involvement in the OP will be participatory and consultative. Information/communication systems will be established which keep all informed.

(v) ***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 ASARECA's 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 accessing the internet by the National Agricultural Research Institutions (NARIs). 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 that included (i) Enhanced skills in ICM/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. Though most of the former regional commodity networks, programmes and projects (NPPS) attempted to incorporate technology dissemination in their research projects, the uptake of research by end-users remained poor. This concern lead to establishment of 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 employed competitive grants, the NPPS and their NARS partners made progress and gained some experience in promoting technology uptake.

Despite the establishment of TTP, much of the success on technologies and innovations generated and disseminated by the NPPs remained at localized pilot level and in many cases, there was very limited capture, analysis and share of lessons. The need to improve this led to the creation of the Technology Uptake and Upscaling Support Initiative (TUUSI) in November, 2006. 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; (iii) Strengthening capacity in technology uptake and up scaling.

In addition, TUUSI had identified 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 & dissemination of proven and emerging agricultural technologies in orange flesh 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; (viii) Collaborative establishment of national agricultural knowledge management platforms.

1.4.3 Achievements on Past Knowledge Management and Upscaling Efforts

In its activities, RAIN emphasized strengthening of regional capacities to access, generate, exchange, package, disseminate and use information for agricultural research and development in ways that contributed to ASARECA's 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 for the network include the following:

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 for this was to produce agricultural information experts with competence to effectively communicate agriculture, 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 of three academic levels that include a two-year MSc programme with five areas of specialization, a one-year postgraduate diploma and an ICT/ICM course module that could be incorporated into on-going agricultural MSc programmes.

Improved access to available agricultural information: RAIN, through collaboration with FAO and CABI, was instrumental to 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 agricultural sector to support decision making, promote innovation and subsequently improve livelihoods. Other achievements in this priority area included holding of national information stakeholder workshops in nine ASARECA countries. These workshops set 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 of 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".

Harmonized 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 and lead to the establishment of the Information and Communication Unit (ICU). Other notable achievements in this priority area included the formation of strategic partnerships; active collaboration with other

organizations such as FARA, which resulted in the formation of FARA–RAILS, FAO, CTA, GFAR, FARA, CABI, INASP and IARCs in implementing its activities; and establishment of close links with the faculties of agriculture, computer schools and other related departments, RUFORUM, ANAFE, Wageningen University among others.

The notable achievements of TUUSI include the following:
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 ~ http://www.asareca.org/tuusi. These were later synthesized and published in a booklet of abstracts of 37 best-bet technologies and innovations available for upscaling in the sub-region (ISBN 978-92-95070-02-8). The abstracts were organized 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 on policy. The publication of the booklet was done under the Knowledge Management and Upscaling Programme It provides a collection of well tried and tested technologies and approaches that have potential for up scaling to improve livelihoods.

Scaling up/out proven technologies Before the TUUSI was integrated into the Knowledge Management and Upscaling programme, it had in 2008 facilitated implementation of two technology dissemination projects under FARA's Dissemination of New Agricultural Technologies in Africa (DONATA) in selected countries of ECA applying the innovation for technology adoption (IPTA) approach. The two projects are -*Dissemination of proven and emerging technologies in Orange-fleshed Sweet potato (OFSP); Dissemination of proven and emerging technologies in Quality Protein Maize (QPM)*
. The TUUSI facilitated establishment of strong foundations for scaling up/out the technologies and so far nine QPM varieties and related utilization technologies, seven OFSP varieties and related utilization technologies are at different stages of uptake pathways in four and five ECA countries, respectively.

1.5 Knowledge Management and Upscaling Programme

In going through the restructuring and redefining of ASARECA's strategic direction and focus, innovation systems approach and technology uptake and scaling up were among the thematic areas deemed critical for strengthening. It was 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 and competencies in emerging approaches for getting research into use at scale. It was felt that there was a need for greater integration of and cross-cutting thematic issues such as upscaling, policy and natural resource management to the commodity-oriented research portfolio.

ASARECA created the Knowledge Management and Upscaling Programme as a vehicle through which to address the acknowledged weaknesses in technology uptake and upscaling and in management of agricultural knowledge. The Programme is also designated 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. It merges the former RAIN and TUUSI.

The Programme's strategy takes advantage of current and emerging opportunities to enhance ASARECA's capacity to be proactive in the priority area of agricultural knowledge management and scaling up. It is designed to position the Programme strategically to be a key driver in the empowerment of farmers, livestock producers and their organizations and in strengthening public and private 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 ASARECA's contribution 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 on-going 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. Further, the strategy has been developed through a highly consultative process involving all the key regional stakeholders. This was done so as 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, commercialization and competitiveness of the sub regional agricultural sector.

2.0 SITUATIONAL ANALYSIS

2.1 Regional Strategic Priorities for Agricultural Development

Development of ASARECA's new strategic plan was guided by a 2005 ASARECA/IFPRI study on the strategic priorities for agricultural research-for-development in ECA (Omamo, *et al.* 2005). The study recognized the socioeconomic and biophysical realities reflected agricultural potential, spatial distributions of human population and access to markets and used them to build some understanding of the fundamental opportunities and challenges facing agriculture in ECA. The study concluded 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.

Eight distinct agricultural development domains were defined on the basis of population density, agricultural potential and market access. In defining these agricultural development domains, these three factors were classified using high (H) and low (L) values in the sequence of agricultural potential, market access and population density. The eight distinctive agricultural development domains that emerged out of this classification were denoted as: HHH, HHL, HLH, HLL, LHH, LHL, LLH and LLL. From further simulation analyses, the study concluded that:

- The HLL domain is the largest individual agricultural development domain covering 38% of the ECA land area and 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 be important with a potential for agriculture-based growth from regional cooperation. But 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 are unlikely to be large enough to warrant major investments in agricultural R4D. 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 identified national and regional priorities within the major commodity sub sectors across the classified agricultural development domains and concluded 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. This was followed by oilseeds, cassava, and fruits and vegetables.
- On aggregation, 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 organizations engaged in AR4D view knowledge management as crucial due to 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 for knowledge management. In efforts to come up with a better understanding of knowledge management some important concepts have been developed, which 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 utilization. In the example of the Consultative Group on International Agricultural Research (CGIAR), the key aspects in their knowledge management strategy are an increased knowledge of what is known; sharing what is known among the key players; and improved learning.

For many other practitioners, they too increasingly see knowledge sharing as a better description. Some would prefer to emphasize "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 utilization 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 sector problems 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 employment 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, organizing 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, there would be a need to describe the information to be collected. Similarly, with regard to knowledge management within a domain/sector, different categories of stakeholders need to agree generally on ways to describe the information they collect as a group. Once they have descriptors for the information they need to collect, then 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 realized much easily 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 journal (explicit). Information management deals with the processes, systems and tools that deal with explicit knowledge that can be captured in database, searched, manipulated and formatted. Communication tools and techniques are vital in 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 are conveyed between any two entities. In the agricultural 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 the national economics. The communication of agricultural knowledge and information in the 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 globalization and those for which globalization has led to heightened marginalization. The use, application and transfer of modern technologies are central to sustainable development. The global revolution caused by the advancement and deployment of information communication technology (ICT) demands the full involvement of the entire agricultural community if the technology is to be effective. ICT, which continues to revolutionize all facets of life in the world, has opportunities for fostering technological capabilities, and thus enhancing the prospect of economic development.

2.3 Uptake, Utilization and Upscaling of Agricultural Knowledge

Many organizations are increasingly calling for a serious focus on promotion of uptake, utilization and scaling up of available knowledge. This is because the existence of a serious de-link between knowledge and action (Rogers, 1995). This de-link is said to be as 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 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 utilization and doing it in ways that can contribute to outcomes and impacts. It is argued 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 upscaling of available proven technologies and knowledge, especially to address agricultural and rural stagnation in Sub-Saharan Africa. Views from most notable organizations are outlined in various recently launched international, regional and national development strategies.

The poor progress towards the MDGs in Sub-Saharan Africa is a serious concern globally. The United Nations (UN) has called for an African green revolution, in which among the key actions required is to urgently put into action existing knowledge, emphasizing 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, CAADP pillar IV, highlights the critical need to improve the dissemination of improved technologies and to catalyze widespread adoption by farmers as a strategy for improving agricultural productivity and growth in the continent. In the implementation framework for CAADP Pillar IV, the Framework for African Agricultural Productivity (FAAP) emphasizes 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 "Reaching the rural poor", the World Bank states that "*scaling up good practices must become an integral part of development strategie*s" (World Bank, 2003). The strategy calls for identification and upscaling of good practices within country, between countries and between regions. It asks for piloting of new and innovative approaches and emphasizes strategic leveraging of projects to a larger scale to increase efficiency and impact. The World Bank is, in general, committed to knowledge sharing with a focus on adapting, adopting and utilizing 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's position on uptake, utilization and scaling up is well stated in its Research for Poverty Reduction Policy Paper (Surr *et al.*, 2002). The policy paper recommends an increased focus on utilization of what is already known. This comes from acknowledging that much of the existing knowledge and experiences are hardly put into use. The paper cites examples of the monitoring and evaluation, and impact assessment reports of research and development programmes and projects which, if well synthesized and validated, could create greater understanding of what works and what does not work 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 memory of senior practitioners.

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

As noted above emerging initiatives at regional level such as CAADP are also emphasizing 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 ultimate 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. Most

of the regional AR&D initiatives have also asked for increased embracing of information and communication technology at all levels.

Similar initiatives at have emerged at country levels most of which aim to create conducive environments for promoting uptake, scaling up and general management of knowledge for the agricultural sector. This partly because many of the ECA countries still have low levels of absorption of modern information communication technologies and limited application in the agricultural sector. Yet evidence from other parts of the world indicates that lack of demand-driven knowledge can hamper productivity, commercialization and competitiveness of the agricultural 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 aim at first changing the mind-set from the restricted researcher-extension-farmer dissemination approach to a more holistic knowledge management and sharing. In addition to this, countries need to make deliberate efforts to acknowledge the role of science, technology and innovation (STI) in a modern economy, in which new knowledge plays a central role in wealth creation, social welfare and global competitiveness. In doing this, the countries may begin to recognize the following four elements that allow effective exploitation of knowledge (i) an economic and institutional regime that provides incentives for the efficient use of the existing knowledge, the creation of new knowledge, and the flourishing of entrepreneurship; (ii) an educated and skilled population that can create, share and use knowledge well; (iii) a dynamic information and communication infrastructure that can facilitate processing, communication, dissemination; and finally (iv) an effective innovation system that can tap into the growing stock of global knowledge, assimilate and adapt it to local needs, while creating new knowledge and technologies as appropriate.

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, utilization 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 research and development programmes and projects (DFID NRSP, 2003). In ECA effective knowledge management is often hampered by the challenges outlined below.

***Inadequate analysis of agricultural sector communication stakeholders and their knowledge needs*:** Stakeholder analysis is used to identify the interests of stakeholders in relation to the problems that the agricultural sector aims to address. With respect to agricultural knowledge management, such analysis is used to identify those with whom the agricultural sector should communicate with, 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 agricultural 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 the identification of what is hoped to be achieved.

Inadequate analysis of the agricultural sector stakeholders' knowledge, attitudes and practices: The stakeholders in the agricultural 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 in responding to the needs of their clients and disseminating new technologies. On the other hand, majority of farmers/pastoralists/fisher-folk have low to average knowledge about most agricultural sector products and services and range from negative to positive in attitude and low in application of appropriate technologies.

Insufficient identification of the agricultural sector actual and anticipated knowledge products and services: The stakeholders involved in an agricultural 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 vary 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 who the target audience are, where they stand in terms of knowledge of, and interest in the agricultural sector products and services and what media they are used to, as well as clarifying the reason for communicating with them, will all help in choosing the appropriate media for them.

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 agricultural sector wish to communicate with. 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 of Best Bet Agricultural Technologies

Scaling up is a process of efficiently increasing the socioeconomic impact of interventions. This is achieved through replication, spread, or adaptation of techniques, ideas, approaches and concepts resulting into 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 up 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 internalization of technology at higher levels, increases 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 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 system in scaling up*:* Although most available government and organization policies, strategies and programmes put a lot of emphasis on accelerating increased impact on livelihoods and economic growth, these policy thrusts are rarely turned into action mainly because of two barriers: (i) a generally low accessibility, poor distribution, and untimely dissemination of the various policy and strategy documents to agricultural sector managers and researchers and (ii) inadequate monitoring and evaluation of impact of investments in the agricultural sector R&D programmes and projects.

Weak linkages among agricultural stakeholders: Currently, there are distinct policy statements on division of labour between research and extension systems in most of the ECA countries. In some of these countries, there exist separate policies for National Agricultural Research System and National Agricultural Extension System, which sharpen the division between research and extension. This has resulted in the uni-directional linear model of "research-extension-farmer" that is dominantly used 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 recognize and put a lot of emphasis on ensuring that agricultural research results reach the farmer, most of them lack a comprehensive plan of action for managing 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 utilization of agricultural knowledge: Most research programmes and projects are rarely evaluated for effectiveness in communicating information, in facilitating knowledge sharing, uptake and utilization. Furthermore, the terms of reference for most evaluations are often guided by 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, a 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 research and development programmes' and projects' annual plans do not include communication, promotion of uptake and impact targets because this is perceived to be the responsibility of the extension. Because of this, only a limited amount of 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 curricular in universities and agricultural training colleges in most of the ECA countries. Most of the postgraduate curricular do not cater for training in communication of research findings, monitoring, evaluation and impact assessment of projects nor do they offer in-service training courses for the already employed.

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, the 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. In order 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.

The Framework for African Agricultural Productivity has also summarized the key factors that undermine technology dissemination, uptake and upscaling and are common to most of Africa's agricultural productivity institutions and activities as outlined below (FAAP, June 2006).

Capacity weaknesses: Most agricultural research and development practitioners lack capacity for scaling up best-bet agricultural technologies and innovations. This is especially true at least 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 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 research and development 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 utilization are employed. However, in most cases, end-users such as farmers and agri-businesses 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 agendas, thus contributing to the lack of relevance and in turn limited impact. In CAADP pillar IV, the FAAP guidelines emphasize development of systems, which fosters greater farmer knowledge base, strengthens their organizations and empowers them to become more active partners in agricultural productivity initiatives.

Ineffectiveness in the extension systems and the technology dissemination processes: 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 both tied to the issue of relevance and responsiveness of the processes of generation and dissemination of technologies to farmers' needs. To be relevant and responsive, extension systems must change in many aspects. A key area for extension to change is in the manner of 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 capacity of end-users to enable them identify and exploit technological and economic opportunities. However, it has been shown that 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, which is a need for alternative more 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 Revitalization 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 early 1980s. However, there have been very little significant outcomes and impacts from the reforms. Also, in many cases, the reforms have largely involved importation of extension models from outside, usually advocating for downsizing of the extension service through concepts such as decentralization, participation, pluralism, outsourcing/contracting and cost recovery (Gemo *et al*., 2005). However, even with these various experimental models and approaches, extension managers and policy makers in most ECA countries still do not know which of them 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 so as to revitalize agricultural extension in the ECA sub region include the following:

Poor identification of capacity and training gaps in extension and agricultural advisory providers and strategies for addressing them: Improving the technical capacity of advisory service providers to make them well equipped with 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 for maintaining a close link between research and extension is evident due to their clearly acknowledged complementary functions, the need for a similar interlink between extension and university colleges and faculties of agriculture is not well recognised, yet the latter have a role of replenishing the stock of human capital in the former over time. A close link would help training institutions to identify new skills needed and develop programme for addressing the gaps in the training curricula.

Weak and ineffective farmer and producer organizations: Collective action of smallholder farmers through farmer organization 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 out markets and ensures that they have a strong voice to represent their views and in participating in policy making and trade negotiations. However, many farmer or producer organizations in ECA are still underdeveloped and suffer from many challenges both organizational and in technical capacities. The FAAP has specifically emphasized strengthening farmer organizations as key in implementation of CAADP pillar IV objectives.

Weak capacities for regional sharing of information, knowledge and experiences that supports continuous learning and innovation: Knowledge, experience sharing and cross-learning are important avenues for enhancing knowledge the base and for flourishing of

national innovation systems for improved agricultural productivity. There are many initiatives on agricultural research and development with 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 very limited aspects of knowledge and experience sharing. Much 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.

3.0 PROGRAMME STRATEGIC DIRECTION

3.1. Integration of Knowledge Management and Upscaling

The Knowledge Management and Upscaling Programme was created out of two past initiatives of ASARECA namely, the Regional Agricultural Information Network (RAIN) and Technology Uptake and Upscaling Support Initiative (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 is one of the thrusts in the strategy of RAIN while, upscaling of improved technologies is a major component of TUUSI. The VC framework was therefore, applied to integrate the knowledge management and the upscaling aspects of the Programme. In addition, past reviews had shown that most countries 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 ECA still market their produce either in primary or semi-processed forms. In many countries, the major, and perhaps the most profitable components of these product value chains occur outside the rural areas or outside country. 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 outputs markets.

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

The value chain framework permits the analysis of the entire chain from production through marketing and utilization 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 utilization/demand side. Also, it 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 facilitates analysis of bottlenecks that prevent progress and provides a framework for sector-specific intervention including identification of relevant stakeholders in programme planning.
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3.1.1 Agricultural Product Value Chain Structure

The APVC concept describes the full range of activities needed to bring a product or service from conception through the different phases of production/processing, which often involve a combination of physical product transformation and inputs from different service providers to the delivery to final consumers and disposal after use. The value perspective is used to derive strategies for commercialization and to foster pro-poor growth in the agro-food sector.

Building on market opportunities, the APVC approach targets the growth potential directly and provides a framework for analyzing institutional, technical and social constraints.

A product value chain is a sequence of target-oriented combinations of specific production factors in order to create a marketable product or service for final consumption by specific clients. The activities that comprise an APVC can be contained within a single enterprise or divided among different enterprises, as well as within a single geographical location or spread over wider areas. The complexity of APVCs depends on such things as the geographical location and weather; commodity and time of year; available technology; infrastructure and labour supply; distant to markets and market demand; and consumer preferences.

3.1.2 Shifting Focus from Commodities to Differentiated Agricultural Products

Adoption of the APVC approach means a deliberate shift from merely promoting technologies to managing agricultural knowledge and scaling up along a value chain. It broadens the scope of the Programme in terms of diversity of best-practices it can generate and promote to enhance adoption and impact of proven technologies and knowledge. Rather than focus only at promoting scaling up of technologies on production and marketing or utilization of priority agricultural commodities, the scope is larger and more holistic. It aims at managing knowledge for scaling up technologies and innovations that address opportunities and challenges along commodity value chains. An increasingly important aspect in this includes scaling up differentiated agricultural products with increased value-addition to commodities to produce new products to exploit emerging remunerative markets. Successful application of the framework will require a radical shift from the traditional research focus on production/supply-side and its consequent linear technology dissemination to an innovation and knowledge management systems perspective that supports robust APVCs.

Effective application of the APVC approach will also require change in mind-sets and orientation of research scientists and extension practitioners from “pushing commodities” to “market responsive products” approach. In the “pushing of commodity” orientation, production of commodities is mainly driven by existing agricultural potential, whereas, with the “market responsive products” situation every action is geared to satisfy consumers and the market. To this end, the APVC approach enables analysis and understanding of the consumer and market requirements.

3.2 Programme Strategic Focus

The Knowledge Management and Upscaling Programme, like the other ASARECA Programmes, is expected to contribute to the overall success of ASARECA. In order to do this in the most effective and efficient manner while ensuring better outcome mapping and impact orientation, the Programme has adopted a strategic focus that is properly aligned/nested to the overall ASARECA direction. Thus, the Programme has formulated a appropriate vision and a mission statements, goal and purpose. The Programme has also outlined its guiding core values and necessary and sufficient strategic result areas required to deliver on its purpose.

3.2.1 Programme Vision, Mission, Goal and Purpose

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.

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

Purpose Enhanced utilization of agricultural technologies and innovations in eastern and central Africa.

3.2.2 Guiding Core Values

In managing the Programme, decisions and actions will be consistently based on a set of clear principles outlined here as the programme core values. The core values guide actions at all levels when choices are not clear or when there is a gap between intention and reality. These are values that the Programme and its stakeholders and partners hold in common and endeavour to put into practice while performing their functional obligations:

- Professionalism, ethics, scientific excellence and pro-activeness 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

3.2.3 Programme Level Results

Given the vision and mission, the Programme has identified three strategic result areas that are necessary and sufficient to deliver on its purpose. They are designed to position the Programme strategically as a key driver, catalyzing enhanced utilization of agricultural technologies and innovation in ECA, and as a regional hub on agricultural knowledge management and upscaling.

In order to ensure better outcome mapping and impact orientation, the results were cascaded down from the ASARECA organizational level results, but reduced both in scale and scope to the Programme's specific area of interest as follows:

Result 1: Uptake of demand driven agricultural technologies, approaches, knowledge and information **catalyzed.**

Result 2: Capacity for demand driven agricultural advisory services and knowledge management in ECA **enhanced.**

Result 3: Availability of information on agricultural innovation **enhanced.**

3.3 Programme Thematic Areas and Sub themes

The stakeholders went through a rigorous programme planning process, which led to identification of the necessary and sufficient thematic areas of intervention and their

respective sub themes that are required to address regional challenges facing agricultural knowledge management and upscaling.

Analysis of the global, regional and national environment 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 brought on board the issues of agricultural extension, advisory services delivery, and empowerment farmers and their organizations. 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 utilization 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 to integrate 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 reflect the value added role of ASARECA; that they captured demand as articulated by stakeholders/ clients of the Programme; they provide for the harnessing of spillovers and have likelihood of showing meaningful/ beneficial results when implemented. Overall, the Programme is articulated as more of a service one, aimed to provide services and knowledge products to other ASARECA programmes especially the commodity oriented programmes and their partners in the NARS .

Through this process three thematic areas of intervention and six sub themes were identifies as shown in Table 3.1. When implemented, the themes and sub themes together are expected to yield the programme level results, which in turn are designed to contribute to the purpose. The thematic areas and sub themes also express a strong outcome orientation of the Programme as a whole and position it strategically as regional leader and reference point in agricultural knowledge management and upscaling. The rationale for each thematic area of intervention as well as the current situation, challenges and strategic focus are presented in chapters four, five and six.

Table 3.1 Programme thematic and sub thematic intervention areas

Programme thematic areas	**Sub thematic intervention areas**
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 APVCs.
	1.2 Identification, prioritization and analysis of priority APVCs.
2.0 Capacity development for agricultural product value chain actors	**2.1** Strengthening institutional and organisational structures and processes for active participation in priority APVCs.
	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 operationalization 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 a better understanding of best approaches and strengthening of stakeholder skills and competencies for development, implementation and scaling up of agricultural product value chain platforms. The knowledge generated would form the basis for the second function, which is largely a service one, providing best-bet approaches and mechanisms for sharing new knowledge 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 for this programme.

Participatory identification of priority and analysis of agricultural product value chains in which the Programme will base the learning and support projects is one of the strategies that the Programme will use to integrate with other ASARECA programmes. This should begin to take place in the priority setting and preparation of Medium Term Plans. To 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.

3.5 Programme Stakeholder Analysis

The Programme shall carry out a detailed stakeholder analysis in order to identify the interests, roles/responsibilities, comparative advantages and contribution of the various stakeholders in the implementation of the strategic plan. This analysis shall involve development of an inventory of the broad stakeholder categories that have a complementary role or synergy to the Programme.

4.0 DEVELOPMENT OF APPROACHES AND METHODS TO MAKE AGRICULTURAL PRODUCT VALUE CHAINS WORK

4.1 Rationale

There has been a renewed focus on agriculture and agribusiness as priority sectors for spurring economic growth in Africa with calls for developing value chains that integrate producers and markets to make the agricultural sector more responsive to consumer demands. ARD practitioners have therefore adopted the value chain framework (APVC) in their research and development intervention in the sector. The framework can be applied to research interventions on many of the objectives contained in the CAADP pillar IV, especially on technology dissemination and adoption. An important feature of this framework is that it permits analysis of the whole product system. This analysis facilitates the identification and prioritization of opportunities and problems throughout the system leading to the development of more realistic research, knowledge management and scaling up agenda. The methodology brings many concepts, instruments and techniques together in one process and presents them as an integrated whole. However, its application in agricultural research for development is fairly recent, at least with respect to in-depth understanding and the stakeholders acquiring the required skills and competencies to establish new value chain platforms or improve existing ones.

Adoption of the APVC framework to research, knowledge management and upscaling, also implies expansion of the research portfolio to components such as post-harvest processing, marketing and internalization of consumer needs. This further involves working with different categories of players at various stages along the agricultural product value chains, from resources, production, processing, marketing to consumption. It does not focus on farmers only as had been the case in the past. The APVC approach is characterized by increased vertical coordination of many actors and would be expected to demand for more integration and coordination of all different service providers around a given priority APVCs.

The Pillar II of CAADP on improving rural infrastructure and trade-related capacities for market access aims to accelerate growth in the agricultural sector by raising the capacities of private entrepreneurs, including commercial and smallholder farmers, to meet the increasingly complex quality and logistics requirements of domestic, regional and international markets. It aims to focus on strategic value chains with the greatest potential to generate broad-based income growth and create wealth in the rural areas and the rest of the economy. Through development of approaches and methods this thematic area can generate insights that can contribute to objectives of CAADP pillar IV as well as pillar II. The theme has two sub-thematic intervention areas:

(i) Identification, prioritization and analysis of priority agricultural product value chains (APVCs).
(ii) Development and implementation of appropriate approaches and methods for scaling up agricultural product value chains (APVCs).

4.2 Identification, Prioritization and Analysis of Priority Agricultural Product Value Chains

4.2.1 Current Situation

The value-chain approach builds on conditions in the consumer market and emphasizes the interface, linkages, and segments that connect the final product demanded by consumers all the way to agricultural commodities produced at the farm level. This market-driven approach to the formulation of interventions that aim to integrate smallholder farmers into modern value chains can bring about the significant changes being sought in Africa's agriculture and agribusiness sectors.

In recent years, the value chain concept has proven particularly useful for the identification and formulation of projects as well as in the development of strategies for improved agriculture and rural development. A value chain is the full range of activities required to bring a product or service from conception, through the different phases of production, transformation and delivery to final consumers and to final disposal after use (Kaplinsky and Morris 2001). It encompass activities that take place at the farm level, including input supply and continue during first handling, processing and distribution. As products progressively move through the successive stages, transactions between chain actors take place. Money, knowledge and information are exchanged and value is progressively added. Seen from a broader, systemic perspective, the chain concept includes also the 'rules of the game' that is the laws, regulations, policies and other institutional elements as well as the support services, which form the environment where all activities take place.

4.2.2 Challenges and Strategic Focus

The APVC selection and analysis is a decision-making process used to determine and rank the competitiveness potential of a select group of value chains. Through this process the APVCs are examined to understand key trends, structures, players, competitive 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.

The process of value chain selection and analysis is conducted to identify chains that will maximize the impact on investments. The selection process occurs during the planning stages of a project through prioritization of a short-list of value chains weighted and ranked against selection criteria. In many instances the criteria may vary such as a desire to to create a programme that will strengthen industry competitiveness, or to achieve a desired impact among target beneficiaries, address cross-cutting issues and mobilize private-sector participation to drive change. The need to capture lessons and insights from a diversity of priority commodity value chains is another consideration that can be used in the selection of APVCs. In this case, the interest would be to identify a variety of APVC to base the research aimed at developing approaches and methods for efficient and effective implementation of value chain platforms.

The APVC analysis goes beyond farm and farm family and looks into common business relationships and interactions between and among farm enterprises and agribusinesses along the pathway from planning for production to the consumption of the final product. The aim of this analysis is to improve the performance of the value chain by reducing losses, reducing marketing and/or other transaction costs, improving the quality and delivery of the product (or range of products) and placing all the chain actors in an improved position.

Some of the common challenges associated with APVC selection and analysis include the following:

Selecting the favourite enterprise/APVC of a donor agent or policymaker: This is a fairly common decision. It is usually based on an implementers' familiarity with a particular industry, or policymaker'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 quickly out-dated decisions.
Selecting enterprise/APVC on the basis poverty rather than growth focus: Selection an APVC because it employs large numbers of the poor 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 in support of 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.

By revealing strengths and weaknesses, the APVC analyses help chain actors/stakeholders and policymakers to delineate corrective measures and to unleash the development of areas and activities where there is potential for growth. When properly conducted, the analyses can also help to create a shared vision among chain participants regarding challenges and opportunities, thus facilitating the development of collaborative relationships. The analysis is also used for other related purposes such as promotion of enterprise development, the enhancement of food quality and safety, the quantitative measurement of value addition, the promotion of coordinated linkages among producers, processors and retailers and the improvement of an individual firm's competitive position in the market place.

Although the APVC analysis has been shown to be an important tool for integrating efforts towards the enhancing the performance of agricultural sectors, the concept has not been fully internalized in the ECA sub region. In view of this, this sub thematic area will address the following interventions:

(i) Development, validation and implementation of appropriate approaches, methods and tools for identification and analysis of priority agricultural product value chains.

(ii) Formulation, validation and dissemination of promising intervention packages for making APVCs 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 Current Situation

Development and scaling up of APVCs is both feasible and important given high population and income growth rates of the ECA sub region. Urban population growth has led to increasing demand for high-value food commodities of most of the staple and non staple crops, dairy and meat products and processed food commodities, and this trend is expected to continue. At the same time, recent increases in food prices have created pressures and opened up opportunities for ECA countries to assess the potential benefits of food production and agribusiness value chain strategies. Many of these countries see the potential for maximizing productivity and income growth from a value chain strategy. Facilitating development of APVC and improving performance of existing one is not easy. Agricultural research and development practitioners require innovative approaches and methods that take into account all aspects of the value chain concept.

4.3.2 Challenges and Strategic Focus

The major challenge in scaling up APVC is largely about the approaches and methods for doing it. The value chain approach and in particular, facilitating the development of new APVC or improving the efficiency of existing value chains 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/or processing technologies into this process is one of the key objectives. 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 result in the potential for going to scale with the new technology on one hand, but also results in the ability to enhance the welfare of actors all along the value chain. As expressed in the foregoing ECA countries have taken development of value added as a key route to commercialization of the agricultural sectors and this sub-theme will provide insights into those objectives. The challenge however, from a R&D intervention point of view is that different commodity value chains, different market conditions, and variation in farmer organization will influence the kinds of interventions as well as the organizational innovations within the value chain. These variables also influence the types of approaches that can be used, the skills and competencies that would be required to facilitate the development of effective value chains. This sub-theme essentially focuses on maximizing the in learning from implementation of different commodity value chain projects within the ASARECA region so that both existing and future value chain projects are done more effectively 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 come up with best practice in the creation, implementation and scaling up of APCV. 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 then using these in the evaluation and generation of best practice. This can include approaches for dealing with various areas or aspects along the value chain for example, farmer organization for improved access to inputs and/or 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 for evaluation of outcomes within value chain innovation. In this way the sub-theme will be validating and assessing best practice, which is a very crucial anticipated result, but it will in addition be evaluating results across different value chains and different market contexts. Thus, it selection of priority APVC to base the validation of approaches and for learning will be critical.

The second intervention area in the sub-theme is about promoting utilization of the approaches and methods. This area naturally intersects with the first that is on best practice 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 organized within a community of practice.

Ultimately, this sub-thematic area rests very much on development of a regional community of practice, an initial assessment of approaches and methods in value chain development, development of capacity in value chain projects to utilize these approaches to scale up APVC, and monitoring, learning, and feedback that will expand and deepen the practitioners working in the field of value chain innovation and the methods employed. The research questions in this area of value chain innovation are at the cutting edge of strategies for smallholder development within 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, which gives it an unrivalled advantage in being able to compare a range of value chains across very different market and institutional conditions. However, this will require some development of an analytical framework that will inform the development of a monitoring system on project outcomes.

In this regard therefore, this sub thematic area will address the following interventions:

(i) Development and validation of appropriate approaches, methods and tools for scaling up priority regional agricultural product value chains.

(ii) Promotion of utilization of appropriate approaches, methods and tools for scaling up priority regional agricultural product value chains.

5.0 CAPACITY DEVELOPMENT FOR AGRICULTURAL PRODUCT VALUE CHAIN ACTORS

5.1 Rationale

Agricultural product value chains are conceptualized as having diverse actors who range from farmers, input and service providers, processors, and marketers, who interact and are linked with each other, performing different functions and deriving benefits from those interactions. Conventional R&D frameworks, such as the dominantly used linear research-extension-farmer technology transfer approach tend to focus on individual category of actors such as farmers or a service provider e.g. agricultural extension. However, this approach has been shown to be ineffective and practitioners are now turning to other approaches, which derive from the innovation system perspective such as the value chain framework. With these newer approaches it not sufficient to address issues affecting a single actor category for example farmers alone. Rather, intervention frameworks such as the APVC demand for a holistic outlook whereby all stages and actors along a value chain area analyzed interventions that address the weakest links in the chain are developed and implemented. Capacity development is often a key intervention area.

The emergence of new technologies, environmental and economic turmoil, and the increasing market integration pose both opportunities and threats for APVC actors, including farmers, service providers and their organizations. The traditional rules that once governed engagement in agricultural input and output markets are becoming obsolete. New information and communication technologies are dramatically increasing the speed and power of communication and the value placed knowledge. The emergence of modern APVCs in particular and the increasing integration of markets are eroding the protection that producers and their organizations used to enjoy. Now transnational regulations and relations are increasingly governing global, regional and in some cases national markets. In such a dynamic environment, the APVC actors, especially smallholder producers in the sub-region and their organizations not only need to operate efficiently and effectively, they need to develop capacities to adapt and change if they are to survive and prosper. To remain current in this era of globalization, the APVC actors and their organizations need to develop capacities in various aspects. Smallholder farmers in particular and agricultural service providers, especially extension must constantly update the technical knowledge and skills of their personnel, upgrade their physical facilities and strengthen their organization structures and systems. With appropriate capacity building and organizational strengthening, APVC actors, in particular smallholders through their producer associations, could strategically position themselves to exploit many opportunities for integrating their members into regional and global value chains. Globalization often facilitates the spatial dislocation of production processes at various stages of the APVC, depending on the stages' specific requirements. This increases opportunities for smallholder farmers and SMEs if they are well organized have access to technologies and knowledge and have the competencies to meet the conditions for performing these functions at lower costs.

In order to facilitate the development of capacity for agricultural product value chain actors, the following sub thematic areas of intervention shall be implemented:

(i) Strengthening institutional and organisational structures and processes for active participation in priority APVCs.

(ii) Development and implementation of appropriate skills and competencies for establishing, managing and scaling up priority APVCs.

5.2 Strengthening Institutional and Organizational Structures and Processes for Active Participation in Priority APVCs

5.2.1 Current Situation

Agriculture in the ECA sub-region is dominated by geographically dispersed smallholder farmers who produce limited quantities/surpluses for market. The geographic and quantitative dispersion of farm-level supply results in many barriers to efficient marketing, which are associated with poor access to modern agricultural inputs and knowledge markets including slow diffusion of technologies, high costs of product assembly and marketing, relative vulnerability to weather-induced supply fluctuations and thin markets. In addition to this, high transaction costs often limit financial institutions reaching individual smallholders with credit and related services.

Agricultural service providers, notably extension, too need their own kind of capacity development and organizational strengthening in order to improve delivery of demand driven services to their clients, the farmers. Like producers, agricultural service providers need to constantly update the technical knowledge and skills of their personnel with respect to new technologies and alternative approaches for farmers and other clients effectively and efficiently and realize the desired outcomes and impacts.

The focus for this sub thematic area of intervention is on strengthening the institutional and organizational structures and processes of these diverse actors, focusing on farmers and key service providers so as to improve on their participation in APVCs and accessibility of services. Broadly, the value chain actors could be grouped into producer organizations and service providers categories.

(a) Producer or Farmer Organizations

Collective action of smallholder farmers through producer/farmer organizations (PO/FO) 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 both inputs and output markets. Organizing addresses the challenges associated with their geographic dispersion and individual small scale level of business. This improves their terms of access to both input and out markets and ensures that they have a strong voice to represent their views and in participating in policy making and trade negotiations. The POs have enormous potential of becoming fundamental building blocks not for ensuring development of relevant agricultural development agenda and for thriving APVC in the sub-region.

The PO take various forms, ranging from formal institutions, such as cooperatives farmers/producers federations to informal producer associations or groups, community-based organizations, village associations and farmer self help groups. The formal POs are often organized in a hierarchical structure that may stretch from the grassroots to a national or to the sub-regional level. A number of classifications have been developed that distinguish POs on the basis of their legal status, function, geographical scope and size. For instance, most POs can be distinguished in three broad categories of functions that include economic services by commodity-specific organizations, broad interest representation by advocacy groups, and diverse economic and social services by multipurpose organizations.

POs are characterized by two principles that include utility and identity. The utility principle ensures that POs are useful to members and that members are actively committed to achieving jointly agreed upon objectives. The identity principle refers to the fact that members usually share a history and a geographical space, that they have agreed upon a set of rules that govern internal relations among members, and external relations with the outside world, and that they have a common vision of the future, both for themselves and for the group. This shared identity is a strong social mechanism that supports continued interactions among members of the organization.

Producer Organizations can help their members enhance product quality, which is key for getting market access in modern chains, in various ways. They can provide information to farmers about customers' quality requirements, particularly with international chains; implement quality control systems; organize and facilitate innovation processes targeted at reaching higher product quality by providing technical assistance to improve on-farm production methods; and go beyond facilitating the production and marketing process and take on the processing and marketing functions themselves.

In addition, POs can give smallholders a political voice, enabling them to hold policymakers and implementing agencies accountable by participating in agricultural policy making, monitoring budgets and engaging in policy implementation. Such advocacy organizations, or farmer unions, may lobby local, national or regional policymakers on behalf of their members. Multipurpose organizations, particularly those at the community level, often combine economic, political and social functions. They provide farm inputs and credit to their members, process and/or market their products, offer community services and carry out advocacy activities.

(b) Service Providers

Services providers are key actors on the supply-side of the agricultural knowledge and information component of the value chain. They can be either public or private. The main public service providers include research, extension, training, input supply, financial/credit and regulatory services. Research service providers generate knowledge, information and technology on all aspects of agriculture and are key to the success of the industry. Essential aspects of knowledge, information and technologies for agriculture should embrace the totality of the value chain covering elements from the farm to market. Effective and efficient supply of knowledge, information and technologies on the resource base, production through the distribution and marketing systems is essential to the development of a competitive agricultural sector.

Extension service providers play a vital role of facilitating access to and sharing of knowledge, technologies, agricultural information and also linking farmers to other actors in the economy. The extension service is, therefore, one of the critical change agents required for transformation of subsistence farming to modern and commercial agriculture. Appropriate capacity and extension methods are important in improving of agricultural productivity, household food security, wealth and employment creation and poverty reduction.

Several public training institutions offer services to the agricultural sector. They include Universities, middle-level colleges and institutes, and farmer and pastoral training centres. There are also private sector-run agricultural training institutions offering general and specialized courses. These institutions provide specialized training to clients (farmers and

extension personnel) as well as acting as demonstration centres for improved technologies. Other important actors are the regulatory service providers. Regulatory services can either assist or inhibit the development and flouring of APVCs and growth of the agricultural sector as a whole. Dissemination and sharing of knowledge and information from analyses of various policies and advocating change could be one way of contributing to capacity strengthening of regulatory service providers.

5.2.2 Challenges and Strategic Focus

Producer/farmer organizations: Although smallholder farmers have moved to organize themselves into PO/FO, many of these organizations in ECA are weak, underdeveloped and suffer from many challenges both organizational and in technical capacities. They need to transform themselves to become professionally organized entities able to empower their members to ensure they are key actors in APVCs and the agricultural sector. They need to be well functioning so that they can be instrumental in effective delivery of research, advisory, financial and business development services and to assure good access to input- and output markets. Without well functioning Pos, demand articulation, research agenda setting and collective marketing are impossible to achieve for small producers. They also require to effectively link up knowledge especially market intelligence, technical and financial services and policy development in an effective, self-financing and sustainable way. They need to attract, develop and retain competent human resources. On governance, PO in the sub-region must to develop democratic systems and processes that eliminate the danger of elite capture and marginalization of vulnerable weaker members, especially small producers and women farmers. Ultimately POs must transform themselves to become learning and innovative organizations in full contact with external stakeholders and in tune with the demands of members at all levels of the organization.

Agricultural extension service providers:

For a long time, the extension service in most of the ECA countries was dominated by the public sector and for some time yielded good results primarily as result of new technologies being introduced, a well-funded extension service and an elaborate set of farmer incentives such as ready market, subsidized inputs and credit and relatively good infrastructure. However, this has proved unsustainable and in the last two-three decades, public agricultural extension systems and services in most of ECA has been ineffective and in need of serious change in both organization and approach. Some re-organization has been on-going for some time in several countries in the manner of institutional reform or restructuring often through donor support and importation from outside the continent (Gemo, H., et al; 2005). For example, the Training and Visit (T&V) system introduced during the mid 1970s in Kenya and was tried through the early 1990s, multi-stakeholder involvement or pluralism in extension advisory provision and a more recent for private extension. As a result, different kinds of models and approaches for extension service delivery have been introduced and experimented upon in ECA.

Four extension or agricultural service provider organizational models are noticeable in the new types of extension delivery approaches of systems that are being tried across Africa (Omamo S. W., s*et al*). There is the campaign approach designed to address a particular problem such as a disease epidemic and focuses on awareness creation and training of farmers on control and preventive measures. A second is structured around the innovation systems perspectives, where different stakeholders work together for a defined period of time to

address a common problem and to achieve mutually agreed goals. It is a common approach in AR4D programmes and projects. The third uses competitive grants to encourage stakeholders engaged in technology transfer and adoption initiatives to identify and apply innovative processes to promote uptake and utilization of proven technologies by farmers. It has found use in public sector such as Uganda's National Agricultural Advisory Service (NAADS) (MAAIF, 2000), and the Agricultural Technology and Information Response Initiative (ATIRI) implemented by the Kenya Agricultural Research Institute (KARI) in Kenya. It has also been used by NGOs for example by FARM Africa in the Maendeleo Agricultural Technology Fund (MATF) (MATF 2007). 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 on-going evolution of agricultural extension and advisory services in ECA.

In order to address the above enumerated challenges in the context of scaling up proven technologies through value chains, the following intervention strategies shall be implemented:

(i) Strengthening farmer institutions to participate effectively in Agricultural Product Value Chains.

(ii) 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 Current Situation

In order to survive in a dynamic and globalized environment, the value chain actors and their organizations need to constantly improve on their core competencies. The core competencies are those rare skills/capabilities that lead to superior competitive advantage for the organization possessing them. An organization faced with extreme competition can manage their core competencies in two ways. First, the organization can conduct a strategic audit (either explicitly or implicitly) to differentiate necessary from marginal skills and the underlying resources leveraged by these skills. This is done in order to facilitate the ability of the organization to transverse the new highly turbulent environment through a focus on the most important skills they possess (core competencies). Second, the organization can establish value chains with other organizations so as to leverage additional core competencies from them.

The maintenance of organizational fitness not only requires investment in existing competencies but also the acquisition and development of new ones. Consequently, one of the key issues in maintaining organizational competitive advantage involves striking the proper balance between the development of new competencies and the improvement of existing ones. Often, the search for solutions to present problems is in fact a strategic plan of action to develop new core competencies. This access to external competencies may be particularly important for the ECA value chains competing in today's global, hyper-competitive environment. The ability to access external core competencies reduces the need to develop them internally. This shortens the time required to integrate these core competencies into a APVC's activities and products.

To survive and prosper, APVC actors in ECA and their organizations must adapt to changes in their environment in a timely manner. They must also be proactive in building those capabilities that will be required for the future. Due to industry or environmental changes, competencies that may be considered extremely important (core) in one context or historical era may not remain so in another. In addition to this, skills which lead to greater participation in the global economy may not create economic growth in the way they once did. Rather, the ability to adjust to the rapid pace of economic change caused by this globalization and the ability to compete directly with value chains in developed economies may become more important.

Static perspectives of core competencies are most applicable in extremely demanding environments where short-term issues are paramount. For example, value chains that contain a large international exposure facing a volatile foreign exchange market would have to focus critically on the management of this situation in order to survive in the short run. In the long run, however, APVCs must also employ dynamic perspectives so that their competitive position does not erode. Generally, existing capabilities require augmentation in response to new conditions. The nature of the competitive environment determines the appropriate blend of static and dynamic perspectives on core competencies. Both perspectives give insight with their differing emphasis reflecting the competing objectives of striking a proper balance between the development of new competencies and the improvement of existing ones.

5.3.2 Challenges and Strategic Focus

Major changes are taking place in agricultural markets globally, regionally as well as nationally. The liberalization 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 an impetus for the formation of new POs. Fair trade arrangements result in a premium price only for farmers who are organized. 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 that can offer them products of high volume and consistent quality. As individual producers are hardly ever large enough to supply all the stores in a supermarket chain, there is a need for organizations to collect, sort, grade and perform quality control of products from different producers.

Being dominated by smallholders, with large number of widely disbursed producers and fragmented production, intervention efforts aimed at building technical skills and competencies must target farmer organizations and trade associations in order to achieve economies of scale and improve efficiency in participating, managing and upgrading APVCs.

The increasing globalization of agricultural markets presents the ECA smallholders with considerably more complex business environment. They must not only to produce more efficiently, but also have to contend with far more logistically complex and competitive markets. Growing specialization 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.

In order to facilitate the development and implementation of appropriate competencies for establishing, managing and scaling up priority agricultural Product Value Chains, the following intervention strategies shall be implemented:

(i) Identification and prioritization of skills and competencies required to establish, manage and scale up priority Agricultural Product Value Chains.

(ii) Development of capacities for key players to establish, manage, upgrade and scale up priority Agricultural Product Value Chains.

6.0 MANAGING KNOWLEDGE IN AGRICULTURAL PRODUCT VALUE CHAINS

6.1 Rationale

Agriculture has been shown to be the mainstay of the economies of the ECA countries and therefore effective management of the agricultural knowledge and promotion of uptake and scaling up of proven technologies and innovations are critical to development of these countries. The agricultural sector in the ECA sub region is a dynamic system that needs timely and relevant information for critical decision making at all levels. Agricultural strategies of many ECA countries identify science and technology as the basis for ensuring a thriving agricultural system and propose options for acquiring technology, knowledge and information. Most of these strategies encourage the linking of the NARI with international systems for purposes of accessing new technology and information. They also proposes establishment of an agricultural technology dissemination system to link the research, extension and education systems.

Knowledge management on all aspects of the agricultural sector is fundamental to its success. Essential aspects of knowledge and information for the sector should embrace the totality of the product value chain from production to consumption. This includes information on production systems, the production resource base, the marketing- distribution systems and channels as well as on the national, regional and global market opportunities and constraints.

The national policy and planning documents of most ECA countries have articulated the need and the advantages of effective coordination, networking and collaboration in agricultural sector development. This is more specific on management and utilization of agricultural knowledge, given the important role agriculture plays in national development and the fact that no single organization can tackle all the challenges and constraints facing the sector alone.

However, without proper coordination and lack of harmony in knowledge management within the sector, can resulted in duplication of efforts and consequent wastage of human and financial resources across organizations. Serious coordinated effort is thus required to overcome these limitations. The efforts should pay special emphasis to the causes, which may include nationalistic, political, social, cultural, and institutional and competition factors among different stakeholders in the sector in their networking, collaborative and partnership arrangements. Efficient and effective management of these networking, collaboration and partnership arrangements should lead to value addition in the development of the sector through development of joint priorities and programmes on cross cutting issues, harnessing synergies, development and review of curriculum for formal and informal training, and adequate protocols for sharing scientific capacity and agricultural knowledge.

In order 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:

(i) Improvement of communication and sharing of demand-driven regional agricultural knowledge.

(ii) Establishment and operationalization of integrated regional knowledge acquisition and management systems.

6.2 Improvement of Communication and Sharing of Demand Driven Regional Agricultural Knowledge

6.2.1 Current Situation

In an agricultural knowledge management and information system for innovation, people and institutions are linked together to promote and enable mutual learning and generate, share and use agricultural-related knowledge (including indigenous knowledge), skills and information. The system integrates all stakeholders involved in the production to consumption continuum. Agricultural knowledge management and information systems should be about the systematic connection of stakeholders and institutions to the knowledge they need 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; and the utilization through promotion of uptake and scaling up by the right people at the right time in the right place.

The agricultural sector related ministries and institutions of the ECA countries shall be measured by results on promotion of uptake and scaling up of demand-driven agricultural knowledge. This is important because the agricultural sector related ministries and institutions can no longer continue to claim that they are effective while agricultural productivity and profitability continue to deteriorate and poverty and food insecurity in the rural areas become worse. The institutions must, therefore, be involved in ensuring that the knowledge, information and technology they generate is utilized and can visibly be shown to have contributed to poverty reduction, improved livelihood and economic growth.

In the ECA countries, information communication and management 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, plans and identify the required resources, hampers inter-institutional sharing of agricultural knowledge.

6.2.2 Challenges and Strategic Focus

The low absorption of modern technology has been identified as one of the main constraints to agricultural growth in the ECA sub-region. The 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 the physical resources, has been shown to be a major controlling factor of the agricultural product value chains and the resultant benefits. In view of this, a well developed agricultural research infrastructure should create a knowledge base to spur innovations, investments and credit availability. To do this, the system should aim at first changing the mind-set from the restricted researcher-extension-farmer dissemination approach to a more holistic knowledge management and sharing system.

The major challenge to agricultural development is lack of proper organization, distribution and sharing of agricultural knowledge. This challenge is brought about by 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 in dealing with the acquisition, management and sharing of agricultural knowledge. Because of this, there is a need for a comprehensive policy, legal and regulatory framework to facilitate development, investment and application of ICT as well as research and development 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.

Because of this, this sub thematic area of intervention will focus on development of appropriate strategies/mechanisms for facilitating national and regional agricultural sector related ministries and institutions to enhance the adaptation, adoption and effective utilization 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 (CoP) that can provide a regional learning space for practitioners on 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. At the moment there is little interaction between projects across these institutions, and thus the potential for the significant mutual learning across different institutions within a regional framework. Thus, ASARECA has, 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 has status to create a neutral space to bring these practitioners together in a productive way that allows mutual sharing of experience.

In addition to this, the sub thematic area of intervention will also focus on ensuring that appropriate mechanism for facilitating constructive engagement of the agricultural sector communication stakeholders in problem identification, priority setting, planning, implementation, monitoring and evaluation of communication intervention strategies are put in place. This sub thematic shall be delivered by the following intervention strategies:

(i) Identification and development of agricultural sector knowledge products, services and communication pathways to meet the needs of different stakeholder categories.
(ii) Development and implementation of institutional collaboration and partnerships arrangements for developing, managing and sharing knowledge management capacities.
(iii) Analysis and advocacy for enabling agricultural knowledge sharing policies and legal frameworks.

6.3 Establishment and Operationalization of Integrated Regional Knowledge Acquisition and Management Systems

6.3.1 Current Situation

The agricultural sector in ECA is largely publicly financed. The Governments of these countries, with support from development partners, have continued to put high priority in the funding of the agricultural sector from recognizing that (i) agricultural research and extension is a public good, (ii) the rate of return to investment in the agricultural sector is relatively high compared to alternative investment opportunities, and iii) investment in agricultural science and technology has contributed substantively to past growth performance, and is likely to achieve future development priorities. However, knowledge management within the sector has not been seen as a priority requirement and has, therefore, continued to receive inadequate funding.

Availability of skilled and experienced human resource base in ICT/M is crucial in effective generation, processing and dissemination of agricultural knowledge at various levels. Effective implementation of knowledge and information communication and management programmes in most agricultural sector related ministries and institutions in most ECA countries have been, at times, affected by high turnover of trained personnel. It is, therefore, very important for agricultural sector managers to ensure that their organizations attract, develop, retain and effectively utilize human resources with specific communication skills, attitudes and motivations which will allow the organizational and agricultural sector objectives to be attained effectively and efficiently.

In addition to inadequate funding, there are great deficiencies in ICT infrastructure and facilities required for effective knowledge management and communication in most agricultural sector related ministries and institutions. The infrastructure and facilities referred to here are viewed in a wider perspective that encompasses buildings, hardware, software, libraries, communication systems, including electronic and print amongst others. Long-term management of knowledge requires, among other things, establishment of repositories and storage capacities that employ universal standards.

6.3.2 Challenges and Strategic Focus

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

Human resource development in the agricultural sector related ministries and institutions in the ECA sub region has not been needs-driven leading to deficiencies in human resources capacity. In most of these institutions, human resource development has been characterized 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, there is a need to focus on strengthening of the capacity of the agricultural sector

related ministries and institutions to develop, institutionalize and sustain functional and effective ICT human resource development policies/plans on training and career development that are geared towards improvement of the individual person, the group and the overall organizational effectiveness.

In a declining funding situation, no single organization can afford to acquire and maintain sophisticated facilities nor afford to misuse/under use the available facilities. In view of this, there will be a need to ensure that additional financial resources are acquired for developing and managing knowledge management infrastructure and facilities. In addition to this, there will also be a need to ensure that the available infrastructure and facilities in the agricultural sector related ministries and institutions are 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 agricultural 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, operationalization and coordination of an integrated system for acquisition and management of agricultural knowledge shall be delivered by the following necessary and sufficient intervention strategies:

(i) Development and operationalization of efficient knowledge generation, collection, processing, storing and access systems.

(ii) Development of human and infrastructure resources for effective agricultural knowledge management.

7.0 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 (OM). Three levels of programme governance and management exist. At the highest level is the ASARECA Board of Directors (BoD), 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 also heads all the seven Programmes of ASARECA. It will provide supervisory into to the programme governance and management. The third level if the programme management unit (PMU), which is composed of 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 PMU led by the Programme Manager will oversees the development and implementation of projects under thr programme. The Programme Manager will specifically;

- Provide a mechanism for regional coordination to harmonize projects and activities
- Develop and implement fund-raising strategies and activities for operationalising the Knowledge Management and Upscaling Programme's strategy

The Programme Management Unit will be supported by technical, financial, administrative and information management units of the ASARECA Secretariat. However, the PMU will contract and use from time to time 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, relevant and contribute to the objectives of ASARECA. A stakeholder forum may also be organized when necessary to assist the programme in review of strategy and priority setting in response to new and emerging challenges and opportunities.

As noted above, ASARECA rules and procedures contained in the OM 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 on fulltime or part-time basis. Engagement will be guided by balancing between regionality, 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 in order to generate the desired outcomes.

Commissioning of projects

The projects implemented by the Programme will be of sub-regional significance to deliver sub-regional public goods. ASARECA has developed two comprehensive and transparent type of procedures for commissioning of projects that include the Competitive Grant System (CGS) and Direct Commissioning (DC). The CGS is expected to provide an opportunity to all NARS to compete for research grants which also fosters new partnerships. This procedure of commissioning projects shall be employed 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 Call 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 on a competitive and transparent manner using set criteria.

The Direct Commissioning, on the other hand, shall be used where it is felt that the skills needed for implementing 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 organizations 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, HIV/AIDS affected and other vulnerable stakeholder groups in relation to development. Consideration of socio-cultural and social-economic differences of men and women is both a gender as well as 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 farm 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, are continuously getting disinterested in agriculture. Gender mainstreaming is, therefore, critical to the success of smallholder farming in the ECA countries. Further, HIV/AIDS continues to ravage the farming communities leaving a trail of both infected and affected farmers that spend a lot of downtime caring for the victims at the expense of productive time on farm.

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

7.3 Collaboration and Partnerships

ASARECA and the Programme recognize the significant role of each stakeholder and industry player in agricultural research, knowledge management and scaling up of technologies and innovations. In view of this, the Programme will strive to nurture an organizational 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 the Programme's operations. This culture shall be strengthened by the use of 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 operationalize the Strategic Plan, the Programme shall develop a detailed Operational Plan (OP) covering the same period. In developing the five years Operational Plan, the Programme will engage its regional stakeholders in formulating intervention strategies that are necessary and sufficient for delivering the programme level strategic results, Mission and Vision. In doing this, efforts will be made to take into account the sub regional agricultural 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 operationalized through rolling annual work plans in which the necessary and sufficient activities and their respective milestones required to deliver each yearly target shall be specified. The adoption of the rolling annual work plans approach is expected to facilitate annual review of the on going 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 organizations.

7.5 Resource Mobilization Strategies

The implementation of this strategy will be facilitated by funds from three main sources:

***i) Core funding*:** ASARECA will provide the funds to run the core activities of this programme. These activities will include operational costs, M&E, 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 competitive grant scheme.

ii) 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.

ii) Project funding. The purpose of this is to fund raise for implementation of programme's 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 mobilizing 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 mobilization strategies available to the Programme include:

a) Establishment of a Competitive Grants Scheme for projects on a specific strategic intervention area and exploring the possibilities of acquiring contributions from the participating countries' NARES and development partners to finance the scheme;
b) Building capacity of the participating and collaborating research scientists, farmer organizations and other institutions to fundraise through writing joint research proposals that target identified competitive grants schemes;
c) •Establishing beneficial linkages with regional and international programmes and other global funding facilities supporting research for development;
d) •Development of 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;
e) •Entering into twinning agreements with development programmes to co-ordinate their knowledge management and scaling up of technologies and innovations and capacity building activities.;
f) •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 no or reduced cost;
g) •Leveraging of 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

In order to institutionalize the monitoring and evaluation process, the Programme shall develop and operationalize 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. In order to fit into the overall ASARECA M&E system, the Programme has aligned/nested its logical framework to 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, the Programme shall be expected to contribute to the ASARECA result 2 on facilitation of generation and uptake of technologies and innovations; result 4 on strengthening capacity for gender responsive agricultural research for development in the 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 organizations will inform the Programme's annual reports which will in turn feed into the mid-term internal evaluation. The mid-term evaluation results will, in turn, 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 among stakeholders and collaborating organizations. 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

The Knowledge Management and Upscaling Programme 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. Functional linkages and strategies for harnessing and exploiting synergy between this programme and the other programmes is one of the key assumption that underlie successful implementation and delivery of desired results. Strong linkages between this and other ASARECA programmes will be important especially during conceptualization and development of research projects. Failure to achieve this linkage will result in risk of not achieving optimum results.

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Annex 1: Knowledge Management and Upscaling Programme Logical Framework MATRIX (2009 – 20014)

LOGFRAME Logical Framework Matrix Period: 2009- 2014	Knowledge Management and Upscaling Programme	ASARECA Transforming Agriculture for Improved Livelihoods

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 the 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 new varieties, breeds and management practices in selected development domains in ECA	- ASARECA impact evaluation reports - External evaluation and impact assessment reports. - ASARECA and	- Presence of effective innovation platforms in ECA - Availability of appropriate

	2. % adoption of INRM practices in selected development domains in ECA 3. % increase in adoption of improved post-harvest and processing methods by processors and other market intermediaries in ECA *The area under new technologies/number of improved animals (FAAP Indicator)* 4. % increase in area under improved crop varieties in selected development domains 5. % increase in area under irrigation in selected Development Domains 6. % increase in number of improved livestock breeds *Uptake by intermediate users* 7. % increase in adoption of improved approaches to dissemination of agricultural innovations by public, private and the civil society sectors 8. % increase in adoption of improved knowledge management practices	Programme reports. - COMESA reports - East African Community reports - ILRI, SAKSS reports - FARA reports	technologies and inputs - Targeted financial services for agriculture exists - Appropriate knowledge and technology delivery mechanisms operational - Functional agricultural advisory systems in place - Efficient marketing systems in place
Results/Outputs			
1. Uptake of demand driven agricultural technologies, approaches, knowledge and information catalysed.	1.1. Demand articulation and priority setting processes developed and documented by 2009 1.2. Priority research and development issues in knowledge management and upscaling identified and documented by 2009 1.3. % of research and development portfolio addressing the priorities identified during priority setting by 2014 *Uptake of approaches/models* 1.4. Number and types of best-bet gender responsive approaches/models for scaling up technologies, knowledge	- Programme strategy and priority setting documents - ASARECA and Programme performance progress reports. - ASARECA and Programme technical reports - Projects evaluation	- 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-

	and information developed/validated by 2014 1.5. Number and types of best-bet gender responsive approaches/models for scaling up technologies, knowledge and information made available to uptake pathways by 2014 1.6. best-bet approaches in extension/agricultural advisory services and farmer empowerment promoted by 2014 *Uptake of technologies* 1.7. Number of women, men farmers and other end-users in selected countries of ECA trained on improved and accessing technologies for selected priority commodities and by 2014 1.8. Number of women, men farmers and other end users in selected countries of ECA who have adopted on improved technologies (varieties, livestock/fish breeds, management and post-harvest/processing, INRM) for selected priority commodities by 2014 1.9. Number and types of improved technologies (varieties, livestock/fish breeds, management and post-harvest/processing INRM) for selected priority commodities in uptake pathways by 2014by 2014	and other reports - Statistics from Programme website	government, regional and national organisations operate effectively at appropriate levels.
2. Capacity for demand driven agricultural advisory services and knowledge management in ECA enhanced	*Farmer organizations* 2.1. Critical capacity strengthening needs and priorities for farmer organizations to provide demand driven services to their members documented by 2009 2.2. Approaches for gender responsive capacity strengthening of farmer organizations promoted 2.3. % of identified capacity strengthening needs for farmer organizations addressed by 2014 2.4. Number of farmer organizations (at regional, national and district) in ECA effectively providing demand driven services in gender responsive manner to their members by 2014	- do -	- do -

	Agricultural/extension services 2.5. Critical capacity strengthening needs and priorities in agricultural extension/advisory services documented by 2012 2.6. Gaps in agricultural extension training curricula in the ECA region documented by 2012 2.7. Regional training programme that address the identified gaps/needs in curricular for agricultural extension/advisory services promoted for implementation by 2014 *Knowledge management* 2.8. Capacity strengthening needs in knowledge management documented by 2012 2.9. % identified capacity strengthening needs in knowledge management addressed by 2014		
3. Availability of information on agricultural innovation enhanced.	3.1. Number of identified and documented communication stakeholder categories and their communication needs by 2012. 3.2. Number of developed knowledge products and services to address the identified needs of different stakeholder categories by 2014. 3.3. Number of developed and utilized pathways for communicating knowledge products and services to different stakeholder categories**.** 3.4. % increase in demand for agricultural knowledge products and services by 2014. 3.5. Information on best-bet proven gender responsive technological packages and innovations on priority commodity value chains disseminated by 2014 3.6. Number and types of technology dissemination materials for promoting uptake of improved technologies for selected priority commodities developed by 2014	- do -	- do -