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SADC Multi-country Agricultural Productivity Programme (SADC MAPP)

PROGRAMME DOCUMENT

VOLUME 1: MAIN TEXT

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LIST OF ACRONYMS

AET	Agricultural education and training
AIDS	Acquired Immune Deficiency Syndrome
AKIS	Agricultural Knowledge Information Systems
ASCLME	Agulhas-Somali Currents Large Marine Ecosystem Programme
ASLME	Agulhas-Somali Large Marine Ecosystems Programme
AU	African Union
BASIC	Building African Scientific and Institutional Capacity
CAADP	Comprehensive African Agricultural Development Programme
CGIAR	Consultative Group on International Agricultural Research
CGS	Competitive Grants System
CIAT	International Centre for Tropic Agriculture
CIFOR	Centre for International Forest Research
CIMMTY	Centro Internacional de Mejoramiento de Maíz y Trigo
CIP	Centro Internacional de la Papa (International Potato Center)
DFID	Department for International Development
DONATA	Dissemination of New Agricultural Technologies in Africa
EDF	European Development Fund
EU	European Union
FAAP	Framework for African Agricultural Productivity
FANR	SADC Food, Agriculture and Natural Resources directorate
FARA	Forum for Agricultural Research in Africa
FIRCOP	Fund for Innovative and Collaborative Research Projects
GAAC	Grant Authorising and Advisory Committee
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IARC	International Agricultural Research Centre
ICART	Implementation and Coordination of Agricultural Research and Training
ICP	International Cooperating Partners
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi Arid Tropics
ICT	information and communication technologies
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetic Resource Institute
IPR	Intellectual Property Rights
IRRI	International Rice Institute
ISNAR	International Service for National Agricultural Research
KfW	Kreditanstalt für Wiederaufbau
M&E	Monitoring and Evaluation
NARIS	National Agricultural Research Institute
NARS	National Agricultural Research Systems
NEPAD	New Partnership for Africa's Development

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NGO	Non Governmental Organisation
PMU	Programme Management Unit
RAILS	Regional Agricultural Information and Learning System
RISDP	Regional Indicative Strategic Development Plan
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SACCAR	Southern African Centre for Cooperation in Agricultural Research and
SCARDA	Strengthening Capacity for Agricultural Research and Development in Africa
SOFECSA	Soil Fertility Consortium for Southern Africa
SRO	Sub-regional Research Organisation
SSA CP	Sub–Saharan Africa Challenge Programme
SSANAAS	Sub Saharan Africa Network on Agricultural Advisory Services
SWIOF	South West Indian Ocean Fisheries Project
TST	Technical Support Team
UNDP	United Nations Development Programme
WARDA	West African Rice Centre

EXECUTIVE SUMMARY

Agriculture in the SADC region is the primary source of subsistence, employment and income for 61 percent of the peoples of the region. Despite a diversified natural resource base, overall agricultural growth and productivity have remained low over the past twenty years. The urgent implementation of broad-based programmes to reverse the overall decline in the productivity of the agriculture sector is a central priority in setting SADC Member States on the path of fast economic growth and poverty reduction. The diversity of the region's farming and livelihood systems presents great challenges to policymakers in formulating sound agriculture development strategies. But, even given this diversity, many countries in the region share similar problems and opportunities. Cooperation in some of these key areas can yield significant benefits – as can greater economic integration by taking advantage of natural comparative advantages.

The main constraints to economic growth, food security and poverty alleviation in the region include low agricultural productivity; low cash crop diversification and natural resources degradation. As most smallholders depend on rain-fed agriculture, available water supply from rainfall is a critical constraint. But increasing agricultural productivity not only relies on improved production efficiencies, such as through adoption of modern or improved technologies and practices; adequate access to productive resources, well functioning markets and infrastructure, and a conducive policy environment are also needed. There are evident gains to be had from greater regional cooperation in public investments and policy reforms.

Where rainfall is sufficient to sustain crop agriculture, farming systems are dominated by traditional course grains and cereals, crop-livestock systems and cereal-root crop systems. Declining soil fertility, together with widespread deforestation and overgrazing, has reduced arable land to precarious levels in some areas, especially when the effects of global climate change are factored in.

The Africa-wide cornerstone to address sustained growth and poverty reduction is the Comprehensive African Agricultural Development Programme (CAADP). SADC has further refined CAADP through the Regional Indicative Strategic Development Plan (RISDP) and the complementary 2004 Action Plan for "Enhancing Agriculture and Food Security for Poverty Reduction in the SADC Region" (the Dar es Salaam Declaration). Regional activities are seen as key elements of the SADC strategy developed in these documents. Agricultural research and technology generation is recognised as one of the prime movers of agricultural development and economic growth. It is in this context that the role of science and technology in agricultural development has been emphasized in RISDP and the Dar es Salaam Declaration. For this reason, Pillar 4 of CAADP focuses on scaling up and improving the effectiveness of agricultural research, technology dissemination and adoption, and the achievement of the Millennium Development Goals (MDGs) of a 50 percent reduction in poverty and attaining a 6 percent growth in agriculture by 2015. The SADC Multi-country Agricultural Productivity Programme (SADC MAPP) was initiated to translate Pillar 4 of CAADP and the intentions of RISDP and the Dar es Salaam Declaration into action.

As a central component of SADC MAPP development, detailed consultations were undertaken at country level. From these consultations, defined regional priorities were identified. These

included initiating and strengthening of farmer managed groups and networks (with a special emphasis on marketing groups), improving the availability and accessibility of inputs, and improving the flow of information to farmers and back to policy makers, markets, and advisors. The SADC resource base of public research and extension departments, faculties and colleges of agriculture, private sector entities, NGOs and civil society organisations can contribute substantially to agricultural development of the region if it is appropriately and strategically harnessed and coordinated to focus on regional and national priority areas. It was evident from data that all countries in SADC have areas of expertise and specialisation which could be scaled out in a coordinated fashion across the diverse SADC region. This provides a major unexploited opportunity to contribute to the priority development agendas that have been developed within RISDP and the Dar es Salaam Declaration. The focus in SADC MAPP is on sustained quality and impact, facilitated through enhanced networking and coordination among the various sector stakeholders and international organisations. The poor influence the choice of recommendations, while the private sector contributes towards sector needs such as seed, fertilizer and market systems. This serves to strengthen farmer–extension–researcher–policy linkages for more coherent research and development policy.

The Forum for Agricultural Research in Africa (FARA) developed the Framework for African Agricultural Productivity (FAAP) - an African vision of the knowledge institutions, programs, and policies needed by Africa to raise the productivity of its agricultural sector. FAAP was used as the guide in the development of SADC MAPP. SADC MAPP has developed the key FAAP principles into programmatic 'themes' for supporting activities within the programme:

- Farmer empowerment and market access
- Research and technology generation
- Farmer led advisory services and innovation systems
- Education, training and learning systems
- Knowledge, information and communication
- Institutional development and capacity building

This programme requires an institutional mechanism to undertake the programme**.** After extensive stakeholder consultation within the region, and a review of regional and international experience, a semi-autonomous sub-regional organisation (SRO), linked to the SADC Secretariat through a formal memorandum of understanding has been determined as the most appropriate structure for such an agency.

SADC MAPP is designed as a comprehensive 15-year programme of change, arranged around three 5 year phases. The overall programme goal is to bring about pluralistic and strengthened agricultural technology generation and dissemination, together with strengthening linkages among agricultural institutions in the SADC region in order to accelerate smallholder productivity. The result will be market- and smallholder-responsive and accessible agricultural technologies which will create agricultural growth, and increase incomes especially amongst the rural poor. In the first phase, SADC MAPP will focus on two major objectives:

- strengthen SADC R&D institutions in their efforts to become more pluralistic, responsive to updated regional priorities, and to participate in priority R&D activities in the SADC region, and,
- make a significant contribution to enable farmers, especially smallholders, to have improved access to, and to increase the early adoption of productive, profitable, and ecologically sustainable technologies, as well as enhanced access to markets.

The ultimate beneficiaries of the programme are the crop and livestock farmers of the SADC region (well over half of the 238 million inhabitants of the region). The immediate beneficiaries will be the development R&D institutions, outreach programmes, training institutes and facilities, farmers' organisations and markets across the region (including both public and private sector actors). The measurable indicators of "success" will be the increased proportion of farmers that have access to, have been reached by, or have adopted improved and profitable technologies. By 2009, an effective sub-regional organisation (SRO)[1] will have been established and will be enabling the implementation of priority research and development (R&D) activities (which will be updated on a periodic basis). By the end of the second phase, there will be established and routine joint regional activities[2] undertaken under SADC MAPP sponsorship, with sustainable financing, and with clear impacts on agricultural productivity.

SADC MAPP Estimated Financing of New Investments[3]

Themes (all costs in US$ '000s)	**Total**	**%**
Theme 1: Farmer Empowerment and Market Access	9,644	13
Theme 2: Research and Technology Generation	28,961	38
Theme 3: Farmer-led Advisory Services and Innovation Systems	6,657	9
Theme 4: Education, Training, and Learning Systems	7,430	10
Theme 5: Knowledge, Information Technology and Communication	5,217	7
Theme 6: Institutional Development and Capacity Building	4,715	6
Developing a Sub-Regional Organization	14,008	18
Total Baseline Costs	**76,633**	**100**
Contingencies	8,937	12
Total Programme Costs	**85,569**	**112**

[1] proposed to be called "CARDESA" – the Centre for Agricultural Research and Development for Southern Africa
[2] A regional sub-project will involve two or more countries within SADC designing and implementing a proposal which has a clear scaling out strategy in both (and possible more) collaborating countries, plus a sustainable long term uptake pathway.
[3] Two scenarios were developed in estimating the additional financing requirements for SADC MAPP, option 1 is based on a gradual roll out while option 2 assumes faster implementation with higher resource requirements.

Primary funding sources in the first phase of SADC MAPP are expected to include:

- Funding from International Cooperation Partners (ICP), where it is preferable to maximize grants, via various modalities, including programmatic funding, such as through "basket funds", grant trust funds, harmonized and aligned projects,
- Member state contributions, to help secure ownership (including through possible concessional no-interest/long loans, and cash and in-kind contributions), and
- Establishment of a SADC MAPP endowment fund, to which donors would make substantial one-off contributions, which can be used to sustain the funding of future "core" funding of SADC MAPP, including for the SRO CARDESA.

An important feature of SADC MAPP is the progressive simplification and integration of implementation arrangements and donor funding mechanisms. This is consistent with the Windhoek Declaration (in which SADC governments are encouraged to take strong leadership, and donors exhorted to harmonize and align their assistance through programmatic approach to enhance aid effectiveness and sustainability). This also reflects consistency with global commitment as expressed in the 2005 Paris Declaration. SADC MAPP represents a major shift from the traditional "project financing" (and the consequent fragmented and unsustainable assistance) to modalities which support programmatic approaches. It is anticipated that funding mechanisms will gradually converge towards a common basket-funding mechanism in accordance with satisfactory fiduciary and associated financial procedures and management capacities.

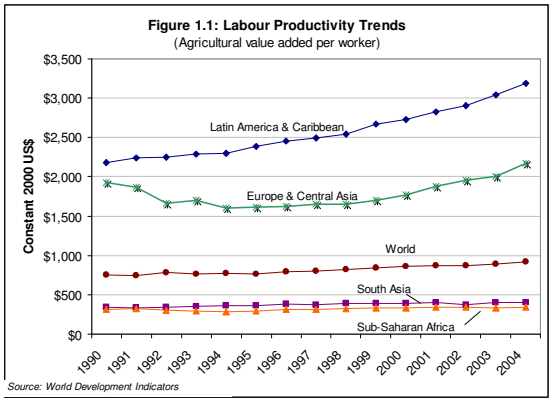
1. INTRODUCTION AND SECTOR CONTEXT

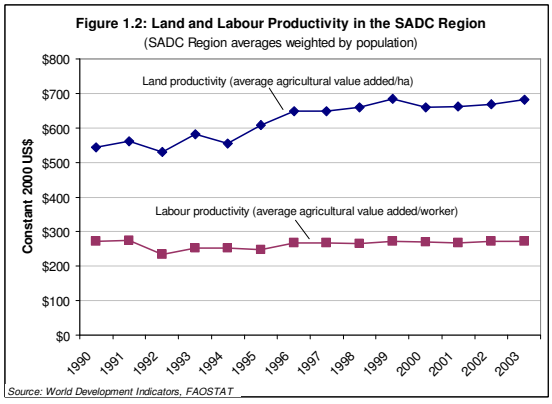
1.1 Agricultural Development in SADC Region: the Productivity Challenge

The SADC region of 14 Member States is home to 238 million people. Agriculture contributes about 35 percent to the Gross Domestic Product (GDP) of the Member States and over 70 percent of employment in the region. Agriculture in the region is an important source of exports, contributing on average about 13 percent to total export earnings and about 66 percent to the total value of intra-regional trade. The performance of agriculture has a strong influence on the rate of economic growth, the level of employment, demand for other goods, economic stability, food security and overall poverty reduction and eventual eradication. Agriculture is the primary source of subsistence, employment and income for 61percent of the peoples of the region. However, agricultural growth rates have been low and highly variable across the region, averaging only 2.6 percent per annum in the last decade and declining in per capita terms. While production more than doubled over the period 1960-2005, the per capita production decreased by 40 percent over the same period. Without increased agricultural production, food security, poverty reduction and natural resource conservation goals cannot be achieved for the majority of the SADC countries.

1.1.1 The Declining Productivity Picture

Although the SADC region is well endowed with a diversified natural resource base, overall agricultural growth and productivity have remained low over the past twenty years. Figure 1.1 compares labour productivity between major geographical areas and Figure 1.2 shows the population weighted average for both land and labour productivity for all 14 SADC Member States.





Although the region has experienced agricultural growth, it has not kept up with population increases as shown by the relatively flat trend in agricultural value added per worker. Consequently, agricultural incomes have declined and food insecurity has increased markedly throughout the region. Average daily per capita calorie intake in the region has decreased over the past 15 years. With cereal demand expected to reach nearly 60 million tons in 2015 (double the current demand), food security is now a central concern of SADC Member States.

The urgent implementation of broad-based programmes to reverse the overall decline in the productivity of the agriculture sector is a central priority in setting SADC Member States on the path of fast economic growth and poverty reduction. Reducing the number of SADC's absolute poor will require a sustained annual growth of at least 5 percent (almost twice the level achieved since 1980). Halving severe poverty by 2015[4] will require GDP growth to average 8 percent annually, and agriculture growth of at least 6 per cent – both of which are achievable with significant improvements in agricultural productivity.

1.1.2 Agricultural Productivity Systems: Main Constraints and Opportunities

Improving the effectiveness of agricultural technology generation and dissemination systems requires responsiveness to farmer needs. At present, stakeholders, particularly farmers as the end-users of technology, generally contribute little to the research and extension agenda or in identifying research priorities. Technologies produced by the national agricultural research and development systems (NARS[5]), even when relevant, often are not widely taken up by farmers, suggesting lack of effectiveness in the transfer of technologies.

Traditionally, technology generation and dissemination in the SADC region has been the mandate of public sector institutions within a country, typically research and extension departments within the ministry of agriculture[6]. Secondly, the fact that the research agenda is not commonly shared by all the NARS has often resulted in duplication within Member States and across the region, in uncoordinated and fragmented national and regional agricultural research systems and in competition for scarce research resources, when collaboration and joint planning would otherwise lead to greater efficiency. This has also constrained advocacy for support to research and advisory services.

The NARS in many SADC Member States are constrained by low critical mass of qualified extension staff and scientists needed to effectively carry out priority research, and by limited availability of skills in certain research areas such as biotechnology. The difficulty to maintain human capital within the NARS and a chronic shortage of operating resources within these systems also constrain their performance. Loss of qualified and experienced staff due to declining remuneration in real terms has become serious, further impacting negatively on the already inadequate critical mass and the inadequate training to replace lost expertise. The physical infrastructure and equipment for research has also deteriorated due to inadequate maintenance resulting from deteriorating funding. During the 1980s and 1990s, the SADC region witnessed a substantial increase in on-farm adaptive research effort with support from bilateral partners. However, the lack of adequate operating funds in recent years has forced the NARS to cut some of their on-farm programmes and curtail implementation of new ones. Because adaptive work for smallholder farmers is the most expensive, in terms of transport, equipment and daily subsistence allowances for research staff working off station, it has been the hardest hit by declining budgets. The momentum built up in the 1980s and 1990s has therefore largely not been sustained. Secondly, the resultant infrequent monitoring of the remaining on-farm trials has effectively weakened the research-extension-farmer linkages that have been so essential for efficient technology generation and transfer. The apparent retreat by national agricultural research institutes (NARIs) back to more on-station

[4] Both the first Millennium Development Goal (MDG) and that of SADC Heads of State and Government,

[5] In this Document, NARS is defined according to FARA. It is inclusive of all stakeholders involved in agricultural research and development , including civil society organisations involved in agriculture, extension or advisory services

[6] Although other institutions do carry out some research and provide extension services, such as faculties of agriculture, private sector entities like agro-chemical and seed companies and NGOs, generally their potential contribution has not been realised.

research means reduced attention to the technology needs of the smallholder sector because on-station research alone is inadequate to address the problems in the smallholder sector. Therefore, the declining financial support to agricultural research in the region is a negation of the regional policies and strategies.

A pluralistic approach to agricultural training, technology generation and dissemination has the potential to address some of these constraints. This would entail revising the national training, technology generation and dissemination mandates, policies and strategies to include the active participation of all players within the NARS (i.e. the NARIs, the universities, the private sector, NGOs, etc) in order to widen the technology generation and dissemination base and to coordinate and harness the relevant skills and the comparative advantages of the different players within the entire NARS.

Improving the institutional framework at the regional level would also assist in the development of more effective agricultural productivity systems. The absence of an effective regional organisation (SRO) for the strengthening and coordination of the agricultural research, extension and training systems in the SADC region is a major constraint. Until 2001, SADC's main instrument for strengthening agricultural technology development has been the Southern African Centre for Cooperation in Agricultural Research and Training (SACCAR), a regional organization that had been established to coordinate the research programs of common interest to the NARS in the SADC region, to organize systematic knowledge sharing and human resource development, and to strengthen partnerships with CGIAR centres and other advanced research institutions. Following the closure of SACCAR, because of perceived lack of efficiency and cost-effectiveness, the main instrument for strengthening agricultural technology development has been the Agricultural Research and Training Unit within the Food, Agriculture and Natural Resources (FANR) Directorate of SADC. The Unit's objective is to promote partnerships in the area of agricultural research and training, to improve regional research and training co-ordination, and to improve the efficiency of information and communication systems. It has endeavoured to provide a platform for closer interaction and collaboration between NARS and between scientists within the region. The achievements of the Unit have however been limited by lack of human resources (the Unit has only one staff post) and weak linkages with NARS and with international partner institutions. Moreover, there is a need to move beyond a focus solely on agricultural research to encompass the full range of systems affecting agricultural productivity.

The wide variety of farming and livelihood systems in Southern Africa reflects the diversity of the region's agro-ecology and climates. This diversity presents great challenges to policymakers in formulating sound agriculture development strategies. In Tanzania the agriculture sector contributes almost half to GDP; whereas in Botswana agriculture's share of GDP has fallen sharply from 35 percent in 2002/03 to 3 percent today. While arable land availability in the various SADC countries is an explanatory factor in this variation, resource endowments (especially minerals such as gold, diamonds, and copper) may also help to understand the wide variations in the contribution of agriculture to GDP. While countries such as Angola, Madagascar and Zambia registered negative GDP growth rates between 1990 and 2002, others - Botswana, Mauritius and Mozambique, for example - registered impressive growth rates during the same period.

But, even given this diversity, many countries in the region share similar problems and opportunities. Important common elements include similarities in agro-ecology and climate, the effects of globalization, political and economic liberalization, urbanization and migration, natural disasters and climate change, influences of health (especially HIV/AIDS),

biotechnology, and the changing proprietary nature of agricultural technology. Cooperation in some of these key areas can yield significant benefits – as can greater economic integration by taking advantage of natural comparative advantages. For example, the natural role of the South African economy as a growth pole in the entire region can serve both as a dynamic market for agricultural exports from poorer neighbouring countries and as a source of investment and technology diffusion. Recent evidence has shown that poorer countries can achieve additional economic growth by simply taking advantage of this potential through increased agricultural productivity. Additionally, because of the pro-poor nature of agricultural growth in most of these countries, a significant reduction in poverty can also be expected.

But increasing agricultural productivity not only relies on improved production efficiencies, such as through adoption of modern or improved technologies and practices: adequate access to productive resources, well functioning markets and infrastructure, and a conducive policy environment are also needed. Given that constraints to productivity growth and market access are typically shared across national boundaries, there are gains to be had from greater regional cooperation in public investments and policy reforms. For example, a regional effort to improve road infrastructure and transportation costs between countries could quickly raise the share of agricultural commodities from poorer countries traded in domestic and regional markets. Another good example is research and development (R&D). Greater multi-country cooperation in R&D can lead to more efficient use of scarce resources by adapting technologies across countries rather than unnecessarily duplicating expensive research activities within each individual country.

The main constraints to economic growth, food security and poverty alleviation in the region include low agricultural productivity; low cash crop diversification and natural resources degradation. Much of the region suffers from highly variable rainfall (including frequent droughts and flooding) and vulnerability to pestilence and disease. It is a challenging and unstable environment for farmers, the majority of whom rely on rain-fed irrigation. The success of the green revolution in Asia, with varietal improvement as the prime mover, relied on access to reliable water (either through irrigation or favourable rainfall). In such areas, the major constraints to increasing production were agronomic and could largely be overcome through the increased use of chemical fertilizers and pest control. The necessary infrastructure required to deliver technology and market surpluses was largely already in place. However, the green revolution approach could not be transferred easily to agro-ecosystems with less favourable rainfall patterns, soils and land forms - the case of much of the SADC region[7]. In such systems, severe resource management problems have to be overcome before agronomic improvements can be effective. These problems relate to water management, control of erosion, cropping systems and soil fertility management and amelioration. Within Southern Africa the availability of water – be it from rainfall, local groundwater or surface water use, or formal irrigation schemes – is generally the most binding of constraints (Only 3.5 percent of the region's arable land is currently under irrigation). As most smallholders depend on rainfed agriculture, available water supply from rainfall is a critical constraint.

[7] The soils in the region are increasingly mined of nutrients. Fertilizer use currently stands at 8 kg per hectare against the world average of 98 kg per hectare. Over the past decade, neither fertilizer consumption nor crop yields have shown significant increases. The SADC region accounts for only 1 percent of the world consumption of fertilizer nutrients, and 33 percent of the African consumption.

1.2 Regional Research and Development[8] Priorities

1.2.1 Typology of Agro-ecological Regions and Farming Systems

The SADC region is highly variable in terms of its farming systems and agro-ecology, it is endowed with a wide range of agro-ecological zones from arid to humid zones, with potential for production of a wide variety of crops, livestock, forestry and fishery products. Nonetheless, the specific characteristics of agro-ecological zones within the region point to the potential for shared interests and priorities. In most of the countries in the SADC region agro climatic and agro ecological zoning has been based on length of growing period and also on the forest.[9] Figure 1.3 shows the distribution of the length of growing period (LGP) [10] across the SADC region.

The zones are classified as:

- Arid: LGP less than 75 days
- Semi-arid: LGP in the range 75 - 180 days
- Sub-humid: LGP in the range 180 - 270 days
- Humid: LGP greater than 270 days
- Highland tropical areas and temperate regions are defined by their mean monthly temperature.
- Temperate: One or more months with monthly mean temperature, corrected to sea level, below 5° C.
- Tropical highlands: Tropical areas with daily mean temperature during the growing period 5 -20° C.

[8] In this document, Research and Development (R&D), is re-defined to emphasise the difference in approach from traditional 'top-down' technology transfer efforts and to highlight the joint learning that will take place as a central focus on SADC MAPP activities. R&D here implies a strong commitment to helping farmers find, store, generate, share and use information and knowledge.

[9] Forest is defined both by the presence of trees and by the absence of other land uses regardless of the legal status of the land.

[10] LGP measures the total number of months that rainfall exceeds evapotranspiration, leaving sufficient excess water to support the growth of crops and pasture.

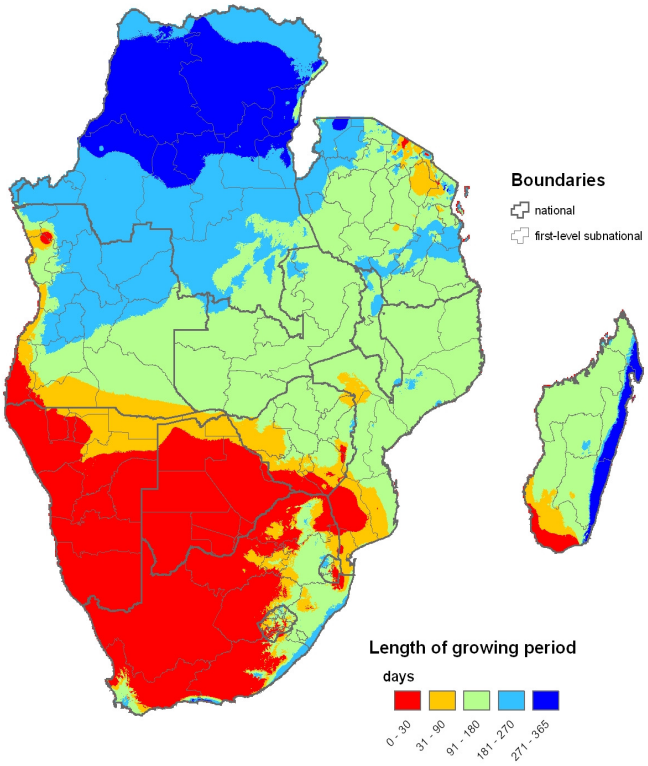


Figure 1.3: Length of Growing Period

Within the northern part of the region, and in Madagascar, semi-humid and humid conditions predominate. Forest-based farming systems are prevalent in these areas (and mixed rice-tree crop farming systems in Madagascar). In these systems, rainfall induced crop failure is less of a concern than in the more arid areas of the southern mainland. However, these areas also tend to contribute little to regional or international trade (unlike West Africa, in which one of the region's main export earners, cocoa, comes from forest systems).

To the south of the forest zones are found root crop farming systems, in which cassava and other roots predominate (particularly in Angola, Zambia, southern Tanzania and northern Mozambique). Although the risk of climate induced crop failure is only moderate in these areas, there are still limited technological advances that would allow for increased production of the crops that dominate in these systems. There are also limited enhanced market opportunities. Mixed farming systems, including crop-livestock and cereal-root crop systems, are also very common within these semi-humid areas. Farming systems in these areas face considerable challenges, including soil erosion, weeds, pestilence and disease. In addition to these biotic constraints, heat and humidity cause difficulties for transport and storage of agricultural commodities. Increasing agriculture production without proper concurrent infrastructure development can thus lead to inefficiencies as large quantities of production may be lost through problems such as poor storage and lack of access to markets.

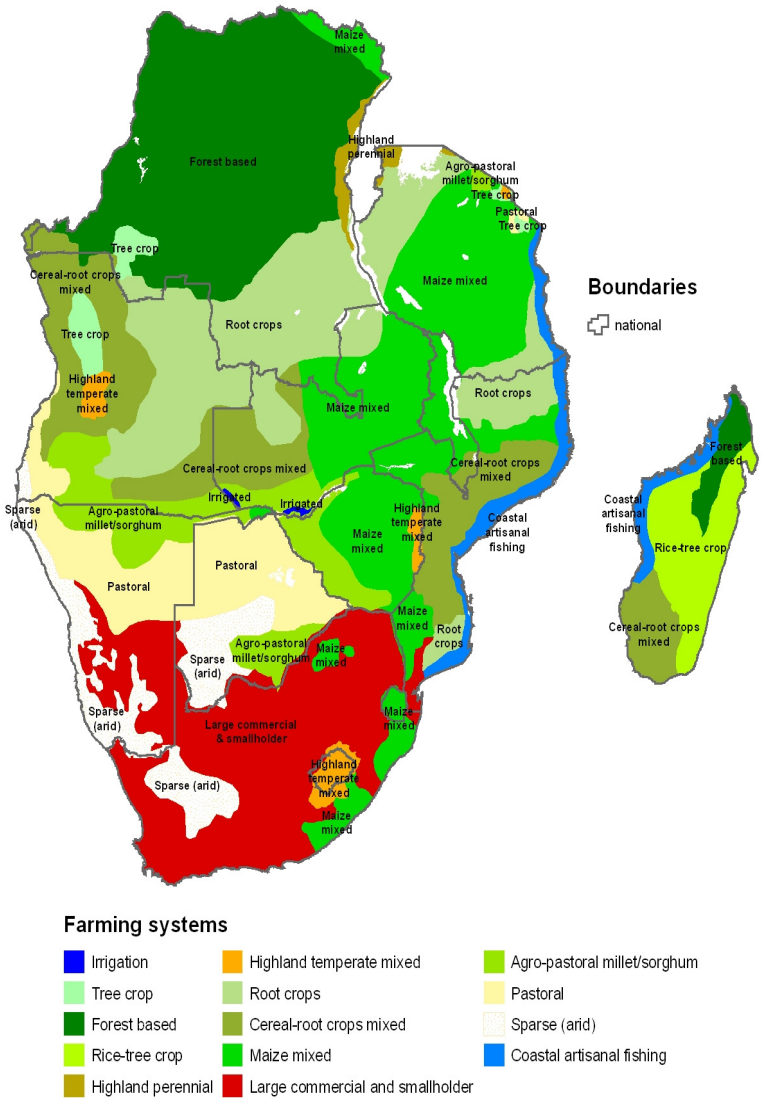


Figure 1.4: Agro-ecologies and Farming Systems in SADC

In the semiarid and dry sub-humid zones of northern South Africa and southern Namibia, the dominant agriculture is mixed cereal-livestock systems. Within these systems – in which are found both smallholdings and large commercial farms – maize predominates in the north and east, and sorghum and millet are most important in the west. An estimated 11 million head of cattle, as well as small ruminants are found here, although the level of crop-livestock integration is relatively limited. Smallholders within these areas are particularly vulnerable, since soils tend to be poor and the drought is frequent. Dependence on off-farm employment is very high in these areas.

In much of the region rainfall is limited and, where rainfall is sufficient to sustain crop agriculture, farming systems are dominated by traditional course grains and cereals, crop-

livestock systems and cereal-root crop systems. Grains like millet and cowpeas are important crops as they can thrive even on soils of relatively low fertility. The crops grown are mainly annual, and systems are determined by rainfall distribution (generally one or two wet seasons), the water-holding capacity of the soil and the topographic position of the area.

The semi-arid agro-ecologies of Southern Africa are particularly vulnerable to great climatic variability including frequent droughts as well as flooding. The droughts of the region result in crop failure, declining terms of trade among livestock and cereal (cereal prices rise while livestock prices decline), and widespread hunger and famine at the extreme. The availability of cultivable land in the more arid areas has been severely restricted by land degradation, increasing desertification and limited water availability, especially for land-locked countries. Declining soil fertility, together with widespread deforestation and overgrazing, has reduced arable land to precarious levels in some areas. Global climate change is likely to be the most damaging to those farming systems in arid and semi-arid areas. These arid and semi-arid areas are also vulnerable to an increased likelihood of conflict between farmers and nomadic herders as land becomes more of a constraint.

These overviews on Southern Africa's diverse agro-ecological zones and agricultural systems illustrate that agricultural performance in the region is conditioned by deeper socioeconomic and biophysical realities. In particular, agricultural performance determines and reflects: spatial distributions of human population and associated access to cultivable land, agricultural potential as captured by agro-ecological conditions, and access to markets.

1.2.2 Summary of emerging priorities

Under the New Partnership for Africa's Development (NEPAD), Africa's Heads of State and Government have recognized the critical importance of agriculture as the cornerstone of sustained growth and poverty reduction through adoption of the Comprehensive African Agricultural Development Programme (CAADP) - a strategy to put African agriculture on the path of strong and sustained growth. SADC has further refined CAADP to the needs of the region by developing two major strategy documents. The Regional Indicative Strategic Development Plan (RISDP) is complemented by a short to medium term Action Plan for "Enhancing Agriculture and Food Security for Poverty Reduction in the SADC Region" (the Dar es Salaam Declaration), which was adopted by the SADC Heads of State and Government in 2004. Together the two documents provide a sound framework for achieving strong and sustainable growth in agriculture and indeed the overall rural economy in the region.

SADC's strategy for agriculture, as enshrined generally in the RISDP and more specifically in the Dar es Salaam Declaration, shares the principal elements and priorities of CAADP and closely mirrors its emphasis on agricultural productivity. Among others, the Declaration calls for an increase in the investments and institutional development directed toward improving the effectiveness of national and regional agricultural technology and productivity systems – in particular, agricultural research, agricultural advisory services, and other related programs and institutions. Regional activities are seen as a key element of the strategy, which calls for an expanded role for programs at the national and regional levels.

As a central component of SADC MAPP development, detailed consultations were undertaken at country level. Time and resources did not permit a comprehensive institutional mapping of every SADC country, but a national verification and consultation workshop to review MAPP was undertaken throughout the region. The analysis of both SADC MAPP country reports and national workshops revealed many "best bet" improved technologies and

practices available in the region which could potentially be scaled up/out to smallholders. The consultations showed that a common problem in creating widespread adoption was firstly that improved technologies are not widely available to smallholders. Secondly, too few technical recommendations were based on adequate consideration of economic analysis, market access, processing, value addition, and gender analysis. To address these deficiencies (which are widely recognised at many levels in the technology development and disseminations systems), participants in the consultations reviewed and endorsed the proposed SADC MAPP themes. Farmer Empowerment and Market Access, and Knowledge Information and Communication, were prioritised as key to technology dissemination and adoption. Next most important were Research and Technology Generation, and Farmer Led Advisory Services and Innovation Systems. And finally, the last priority was Education Training and Learning Systems.

The national consultant reports and the outputs from the national workshop indicate that, to enhance productivity, SADC MAPP activities that reflect the defined regional priorities will need to include initiating and strengthening of farmer managed groups and networks (with a special emphasis on marketing groups), rehabilitating and reviving farmer training centres[11], training of farmers on entrepreneurship skills, and improving marketing information networks and systems for farmers and other stakeholders. Availability and accessibility of inputs is an important issue for most countries that did present a report for the SADC MAPP. Unless incentives to ensure availability of inputs and credits at affordable prices are negotiated, adoption of such inputs will remain elusive for most farmers in the region. Farmer training, establishment of Information and Communication Centres and networking between research institutions and other agricultural development centres are some of the proposed approaches.

Most SADC countries have adopted the decentralization of agricultural research and technology generation to ensure participatory planning, monitoring and evaluation of research and generation of technology. To support these efforts, the feedback from national consultations showed that SADC MAPP will need to promote scaling out farmer field schools and farmer to farmer advisory services and establish inventories for farmer innovations systems and disseminate and utilize the inventories of innovation to various stakeholders.

1.3 Strategic Frameworks for Agricultural Research and Technology Development within SADC

1.3.1 Regional Agricultural Institutions, Projects and Programmes

At the regional level, the SADC Secretariat, through its Food, Agriculture, and Natural Resources (FANR) Directorate, is the major agency coordinating agricultural research and development. Table 1.1 summarises recent and on-going regional projects and programmes. It is noteworthy that most of these projects and programmes terminate within the next 2-3 years.

Table 1.1: Summary of recent and ongoing projects and programmes in the SADC region

Project/Programme	Duration	Funding	Objectives	Main Activities

[11] which then offer specialized training in irrigation, oxen training, mechanization, product processing and value addition (fruits, vegetables, milk and milk products, leather, etc)

		Agency		
Fund for Innovative and Regional Collaborative Project (FIRCOP).	2002 – 2008	French Direction of International Cooperation and Development.	Capacity building	Support to research projects on cassava production and processing; advisory service related to climate forecast; conservation agriculture; extension methodologies; and macroeconomics
Improvement and Coordination of Agricultural Research & Training (ICART).	2005-2010	European Union	Capacity building	Support to research projects, research networks, staff training,
SADC Seed Security Network (SSSN)	2004 – 2008	Swiss Agency for Development and Cooperation	Capacity building	Harmonize seed regulations and rules to promote regional seed trade; disseminate of seed information; regional disaster preparedness requiring seed interventions
Land and Water Management Applied Research and Training in the SADC Region.	2003-2008	European Union	Capacity building	Support to skills development, information exchange and coordination network, transfer and utility of knowledge to R&D teams
SADC Sub–Saharan Africa Challenge Programme (SSA-CP)	6 years from about 2006	World Bank and other donors	To raise the impact of research in the region through a new paradigm of 'Integrated Agricultural Research for Development' (IAR4D)	Improving linkages between the NARS and the CG activities in the region
The SADC Plant Genetic Resources Centre (SPGRC)	1988 -	Nordic countries	Capacity building in conservation of plant genetic resources	Germplasm collection, characterisation, storage, multiplication, documentation, information sharing. Training

Each SADC Member State has a NARS with various competencies, resources and skills. These NARS comprise public research and extension departments, faculties and colleges of agriculture, private sector entities, NGOs and civil society organisations. The resource base of the NARS as a whole in the entire region is substantial and can contribute substantially to agricultural development of the region if it is appropriately and strategically harnessed and coordinated to focus on regional and national priority areas. This last point was further reinforced during the MAPP consultations: it is evident from all the country and workshop reports that all countries in SADC have areas of expertise and specialisation which could be scaled out in a coordinated fashion across the diverse SADC region. This provides a major unexploited opportunity to contribute to the priority development agendas that have been developed within NEPAD and the Dar es Salaam Declaration.

1.3.2 Lessons Learned of Relevant Regional Technology Projects and Programmes

There is considerable spatial information available in the region at present. These data allow better identification of areas with common characteristics, and enable governments and

policymakers to deal effectively with problems that cross national borders, thereby setting the stage for potential regional cooperation.

SADC Member States and SADC agricultural strategy recognize that achieving a sustained, technology-led growth requires a radical departure from the past in the focus, structure, policy and operational processes of the region's agricultural technology development systems. In particular, the strategy recognize the need for a departure from the current practice whereby international agricultural research centres are largely de-linked from local producers and technology dissemination systems, and the fact that NARS lack resources and scientific critical mass to bring about the changes needed in African agricultural technologies. CGIAR centres were originally intended to support and augment NARS activity but this has not always been the case and there is some perception among countries that their own NARS are often in competition with CGIAR centres in the region for staff and resources. The SADC agricultural strategy recognizes opportunities for improved partnerships and linkages with international research centres and an improved responsiveness of the CGIAR systems to regional and national priorities. Greater partnership and stronger linkages will need to be established to support closer collaboration between NARS and the CGIAR centres in the region.

A number of lessons have been learned from the agricultural research and development initiatives and programmes in the region. Greater coordination of programmes within the SADC Secretariat and with the CGIAR centres operating in the region will be necessary so as to make better use of the limited financial, human and other resources and to focus on priority areas for the region, taking into account the comparative advantages and potential synergies of the different institutions. There is also recognition of the need to ensure that programmes and projects remain focussed, are addressing the critical technology and development issues and achieving results. In this regard, a strong monitoring and evaluation (M&E) system will need to be built into the design and implementation of each regional programme. A strong M&E system is also essential at the institutional level, to monitor and evaluate the performance of the institution charged with coordinating a particular regional programme, project or activity. These lessons were consistent, following a comprehensive review of relevant experience, with those evident from the wider development context within Africa.

Another valuable insight gained from the SADC MAPP country consultations was the depth of knowledge and experience in the region that could be of benefit to others. In each country where a detailed country report was prepared there was at least one important programme that offered potential for valuable learning in other parts of the region. Each country in the region has programs that intend to increase growth and accelerate poverty reduction in rural areas through increased agricultural productivity, higher added value, and improved producer price incentives. Opportunities also exist through the many NGOs working on technology dissemination and farmer empowerment in SADC. There is an exciting and powerful opportunity at the regional level to complement existing agricultural productivity programs with additional investments, for example, to:

- Facilitate improvement of farmer adoption and scaling up and out of available "best bet" technologies and practices,
- Support research and development on upcoming non-traditional commercial crops including their agronomic packages (horticultural crops, spices etc),
- Undertake research and development on agro-processing and smallholder friendly market systems

1.3.3 CAADP and FAAP Frameworks

African Heads of State and Government have recognized the importance of research, technology generation and dissemination as prime movers of agricultural development. It is in this context that Pillar 4 of NEPAD's Comprehensive African Agricultural Development Programme (CAADP) was formulated. CAADP comprises four mutually reinforcing pillars: (1) sustainable land and water management; (2) improved market access and integration; (3) increased food supplies and reduced hunger; and (4) research, technology generation, dissemination and adoption, with Pillar 4 being a cross-cutting pillar which supports and reinforces the other three pillars (see Figure 1.5).

In 2002, NEPAD requested the Forum for Agricultural Research in Africa (FARA) to take the lead in developing a framework under which Pillar 4 of CAADP might be implemented. In response to NEPAD's request, FARA in consultation with stakeholders, developed the Framework for African Agricultural Productivity (FAAP).

The FAAP provides an African vision of the knowledge institutions, programs, and policies needed by Africa to raise the productivity of its agricultural sector. It provided a framework that promotes a new way of doing things at various levels – regional and national levels. It has received the endorsement and commitment of the AU through NEPAD, and of development partners. FAAP, after extensive consultation with African stakeholders, has developed what is needed to get African agriculture back on track for a productive, sustainable, and profitable sector. The framework is built around three principal elements (i) institutional reform, (ii) increased total investment, and (iii) harmonising funding.

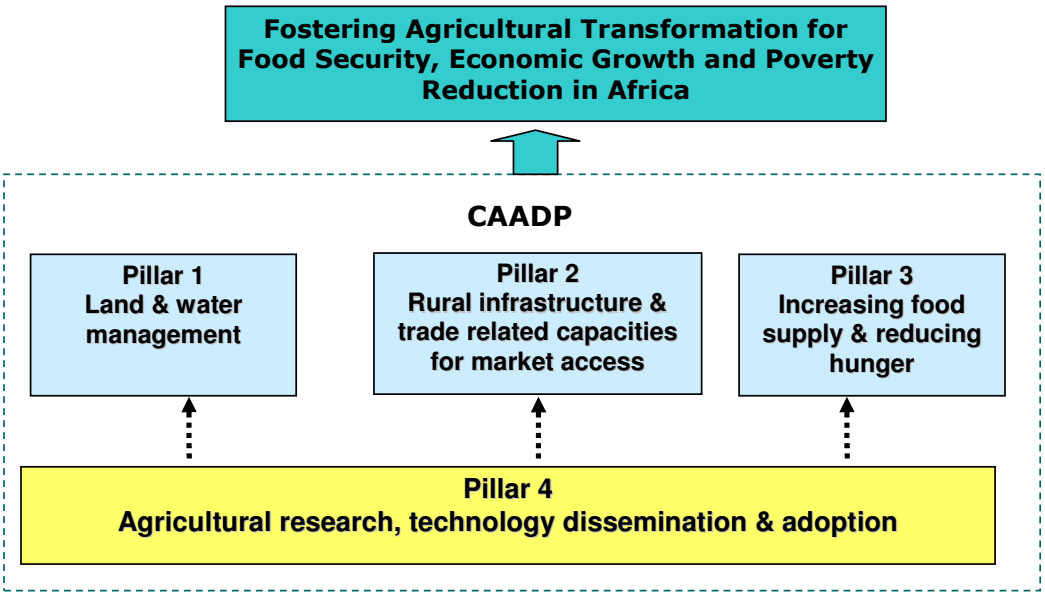


Figure 1.5. The four pillars of NEPAD's Comprehensive African Agricultural Development Programme (CAADP) showing Pillar 4 as a supporting pillar to the other three pillars

1.3.4 The CAADP/FAAP framework and the SADC R&D strategy

As detailed in a preceding section, SADC has refined CAADP to the needs of the region by developing two major strategy documents - the RISDP which is complemented by the Dar es Salaam Declaration. They provide the basis for planning for strong and sustainable growth in

agriculture and indeed the overall rural economy in the region. This strategy has then further been refined into a comprehensive regional programme intended to implement Pillar 4 of CAADP. This programme is called the Multi-country Agricultural Productivity Programme in the SADC region (SADC MAPP). It seeks to complement the region's existing agricultural productivity programs with additional investments and programs in technology generation and dissemination (Figure 1.6).

FAAP has been used as a working tool in the development of SADC MAPP, taking into account the regional policies, strategies and priorities as enshrined in the RISDP and the Dar es Salaam Declaration. FAAP provides a Africa-based guide to the development and scaling up of agricultural productivity programmes, and is strongly grounded in the best of African experience in creating regional policies and priorities, and the institutional structures which have proved effective at regional and national levels. By linking the SADC regional initiative of urgently developing the agricultural research, extension and related programmes specifically to the FAAP effort, SADC countries can benefit from the experience from within Africa and internationally. In addition, as the FAAP process is well recognised both within Africa and by development partners, using the FAAP framework provides enhanced credibility with regard to the likely effectiveness of the programme and institutional structures. It will also serve to encourage NEPAD support for domestic and external funding, and increase the willingness among external development partners to contribute to the programme.

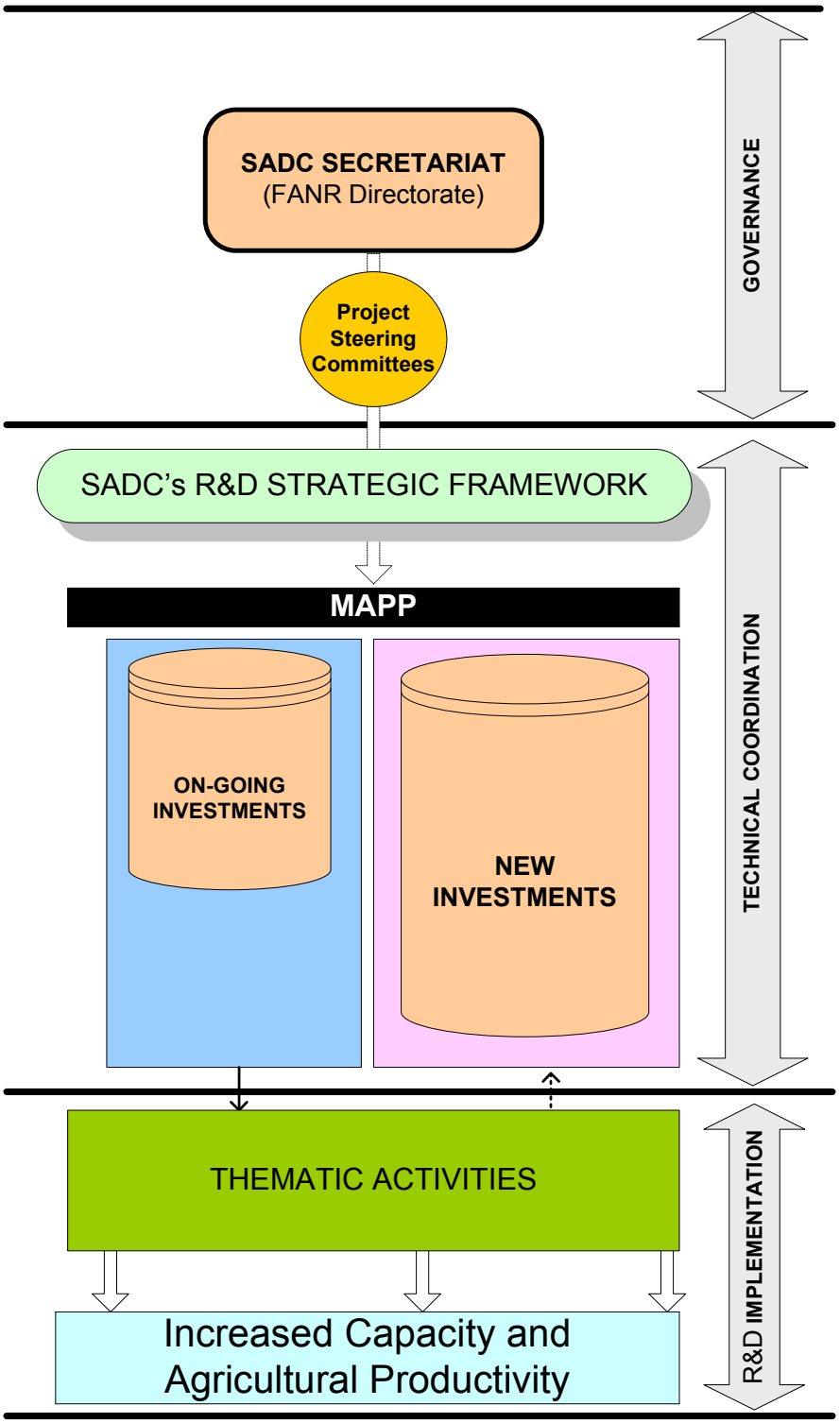


Figure 1.6. The SADC MAPP Concept

The SADC R&D strategy, therefore, is developed around a comprehensive strategic and analytical framework within which the SADC MAPP programme will operate. This programme facilitates (i) reforms to make agricultural research, extension, and education programmes more effective; (ii) increases in the scale of investment of these programmes – including an expanded role for programmes at the regional level; and (iii) harmonization of external support for these programmes. FAAP has provided several key principles that need to be reflected if agricultural productivity is to be increased as planned. SADC MAPP has developed these key principles into programmatic 'themes' that will provide the basis for supporting activities within the programme.

2. SADC MAPP: A NEW AND PROGRAMMATIC APPROACH TO AGRICULTURAL TRANSFORMATION IN SADC

2.1 Rationale for a regional programme

SADC's development strategy, as presented in the RISDP and Dar Es Salaam Declaration, puts agriculture at the centre of national and regional development. Improved productivity by smallholder farmers is a crucial element to achieving broad based agricultural growth and sustainable poverty reduction. Most production is generated by smallholders and there is clear potential for substantial improvement in their productivity. But SADC's development strategy recognises that this is more than just a technology challenge; to address the region's pressing agricultural development challenges and successfully achieve sustained agricultural growth, SADC Member States will need to work together to open new markets and pool resources for undertaking collective action on priority issues of common interest and mobilize global knowledge to the benefit of the SADC region. This requires strong and effective regional development platforms and coherent programs to support achievement of these goals. These platforms aim to promote greater efficiency at the national level through a set of coordinated and harmonized regional interventions that allow countries and their stakeholders to benefit from working together. There are several evident areas which offer significant potential for efficiency gains:

Pooling resources to address areas of common interest more effectively and take advantage of economies of scale. Every country in SADC has a clear need for strong national research and development institutions as a prerequisite for the needed and ambitious agricultural growth envisaged by SADC. There are very real opportunities both to help build the capacity of national institutions and to enhance progress towards increased agricultural growth through a rational and coordinated division of labour between NARS, SADC region research institutions and International Agricultural Research Centres (IARCs). This uses the capacity and comparative advantage of each of the partners in jointly implementing research programmes on issues of common interests. Through coordinated planning and priority setting, and by sharing of costs and benefits of technology generation and dissemination, unnecessary duplication of effort and wasteful use of resources between institutions is eliminated. Cost-effective and far-reaching agricultural research and development programmes can be established with a minimum critical mass of staff and facilities. In addition, by working in teams, capacity is built across the SADC region and greater understanding of new methodologies and approaches is gained.

Developing mechanisms for sharing knowledge, building capacity and contributing towards regional integration. SADC scientists and development workers have achieved evident successes in aspects of agricultural development. The lessons from these need to be disseminated across the region, and adapted as needed to other circumstances. Improved

mechanisms for collecting or disseminating lessons learned in technology development and dissemination from within the region and globally will provide opportunities for policymakers and practitioners to share experiences and access knowledge so as to benefit the poor and excluded. This will involve a sustained effort in human resource capacity development through improvement in basic education, vocational training, institutions of higher learning, universities and/or research centres. The establishment of high quality regional training institutions and joint training programmes will benefit and strengthen national capacity and regional specialization in agricultural research and extension. There are also important opportunities to learn from experiences in reform and improvement in delivery systems of services to smallholders across the region.

Contributing to larger, integrated agricultural markets through the creation of shared information systems and more integrated agricultural technology generation and training systems. Market access is a major problem for smallholders throughout the region. Markets for both inputs and outputs are unreliable, involve high transaction costs, and often inefficient. The poor are particularly disadvantaged, as they typically trade in small amounts. But there are new opportunities to address these problems – and often these require collaboration across national boundaries. Through the effective sharing of 'best practice' and innovative ideas the pace of technology transfer and uptake can be improved overall. The universities in SADC have already instituted a regional network[12] of research and training specifically aimed at mainstreaming these institutions into national and regional priorities, and engaging directly with the private sector. This has had a marked effect on the quality of graduates leaving faculties of agriculture in the region.

Increase the level and quality of investment in agricultural technology development and dissemination. Addressing the complexity of African farming systems requires, among other things, that world-class research be applied to a large variety of critical national issues. Within the SADC region, national expenditure on agricultural research is estimated at about 2 percent of agricultural GDP. However, this average is heavily influenced by expenditures in South Africa. Other SADC countries spend less than 1 percent of agricultural GDP on research. In order to make significant progress on agricultural growth, a much higher level of investment is needed. Investment in agricultural research in the West has generally averaged closer to 3 percent of agricultural GDP, and where the agricultural sector is a much smaller share of total GDP. SADC Member States have committed themselves to increase to 10 percent their national budgetary allocations to the agricultural sector. A regional programme will contribute to increasing the overall level of investment within the research on technology generation and dissemination.

2.2 Design considerations

In order to address more effectively the region's development strategy for agriculture, SADC MAPP has been designed to guide agricultural development in the region for the next 15-20 years, to complement and enhance existing development efforts and to accommodate new and expanded investments in the future. In designing SADC MAPP, therefore, consideration is given to promote interventions that:

- Enhance Incremental Benefits: ensure that investments in agricultural technology generation and dissemination are tied to a clear net incremental economic benefit. SADC MAPP emphasizes responsiveness to market conditions and economic

[12] RUFORUM; The Regional Forum for Development in Agriculture which includes the universities in Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe

justification as key factors for determining technology generation and dissemination investments. Productivity is not pursued as an end in itself, but as a tool for improving and sustaining both financial and economic profits and incomes in the agricultural sector and in the rural economy;

- Apply the Principle of Subsidiarity: support technology generation and dissemination activities according to the principle of subsidiarity in regional programming. The underlying rationale for subsidiarity is that accountability and efficiency can only be achieved if decision making and implementation are located at the most appropriate level. This means that activities supported by SADC MAPP would focus on areas where the region has a comparative advantage over national actions. Activities that could be more effectively supported at the national level or below would be the responsibility of individual Member States;

- Promote Pluralism: establish pluralism in the provision of agricultural services. Research, technology generation and dissemination become a shared responsibility appropriately apportioned between different stakeholders in both the public and private sectors. This is a major shift from the current scenario in which these services are mainly supplied by the public sector (often with inadequate resources). The pluralistic model exploits more fully the skills found within public and private institutions in the region and thus increases capacity at national and regional levels for technology generation and development in agriculture;

- Enhance Partnerships: establish effective linkages and partnerships between research, extension, education, the private sector, agricultural NGOs and end-users (who are mainly the farmers). The enhanced participation, collaboration and consultation involved promotes knowledge sharing and development of synergies and feedback mechanisms. The good linkages between and among all the stakeholders creates a more effective overall technology generation and dissemination system; and.

- Harmonization and Alignment of Donor Assistance: it is recognized that much of past donor assistance in the developing world has been fragmented by donor-driven assisted projects, with resulting high transaction costs and limited aid effectiveness. The Paris Declaration and subsequent Windhoek Declaration represent commitment by the donor and country stakeholders to change the way of doing business, in such a manner which promotes greater ownership and leadership by the recipient countries/regions, and enhanced harmonization and alignment of donor assistance, based on program-based approaches to designing and implementing investment programs. The SADC MAPP is applying many of the best practices principles of encouraging various donor agencies to work together through a program/thematic approach to channelling and coordinating the MAPP funds, led by SADC and its regional stakeholder groups.

For many of the SADC Member States, the principles of pluralism, subsidiarity and effective stakeholder participation, especially the smallholder farmers as the principal end-users of the technology, will bring a new way of doing business and a major paradigm shift from the current practice. This requires sustained long-term policy, institutional, technical, and financial support in order that this new way of doing business, the so called 'business unusual' approach, becomes entrenched into national and regional practice and regional-driven governance arrangements.

The focus in SADC MAPP is on sustained quality and impact, facilitated through enhanced networking and coordination among the various sector stakeholders and international organisations. The best options are pulled together and then promoted through scaling-out and scaling-up initiatives. The farmers influence the choice of recommendations, while the private sector contributes towards sector needs such as seed and market systems. The promotion of proven and well-validated research, using proven and novel (but justified) communication pathways can have a rapid impact on poverty. Existing projects, which have known technical and social strengths, can efficiently add value to a carefully focused development initiative. This serves to strengthen farmer–extension–researcher–policy linkages for more coherent research and development policy. The objective is to create multi-agency, multidisciplinary buy-in, and to build teams that work systematically and with strong national leadership, to develop solutions to pressing national problems and regional opportunities for generating synergies and mutually beneficial collective actions.

This model encourages a coordinated, cost-effective and efficient technology transfer process, using the best of national and international expertise in a focused, problem-solving effort.

2.3 Main Objectives, Key Target Groups and Expected Outcomes

SADC MAPP is designed as a comprehensive 15-year programme of change, arranged around three 5-year phases. The overall programme goal is to bring about pluralistic and strengthened agricultural technology generation and dissemination, together with strengthening linkages among agricultural institutions in the SADC region in order to accelerate smallholder productivity. The result will be market- and smallholder-responsive and accessible agricultural technologies which will create agricultural growth, and increase incomes especially amongst the rural poor. The specific objectives of SADC MAPP are to:

- Create and actively facilitate opportunities for joint knowledge sharing across member countries;
- Develop synergies between countries and systematically encourage the spread of 'best practice' in priority focus areas across the region;
- Promote joint efforts and measures to empower and strengthen the role of farmers and improve the efficiency and market orientation of technology generation and dissemination systems; and
- Channel increased resources to addressing agricultural productivity at the regional level through collective actions.

At the end of the 15 years, it is expected that the following measurable outcomes will have been achieved:

- Strengthened relationships between national, regional, and international research institutions, including joint activities, provision of effective support to national systems of participating countries, and enhanced adoption of pluralistic approaches and participatory mechanisms;

- Achievement of a significant increase in smallholder farmer participation in priority setting and uptake of improved and market-responsive technologies in participating SADC countries, with support of more effective regional and national dissemination messages, and achievement of a more pluralistic and private sector-driven and better organized and empowered farmer support system;

- Participating countries and associated agricultural technology stakeholders (institutions and farmers) adopt use of enhanced and innovative information and communication technologies to help generate, disseminate and adopt enhanced agricultural technologies;

- Organizational capacities and governance arrangements are reformed and strengthened to enable: (a) farmer organizations to be better organized and empowered, together with private sector groups, to better access enhanced agricultural technologies; (b) SADC's FANR to achieve enhanced capacities to better coordinate, promote and advocate enhanced agricultural technology policies, strategies and monitoring; (c) the creation and strengthening of an effective regional organisation (SRO)[13] to implement the SADC MAPP in an efficient, timely, transparent and farmer and private sector responsive manner.

These outcomes will contribute to the overall goals of achieving growth in agricultural GDP within the region; enhanced institutional capacity and agricultural competitiveness such that agricultural exports would be increased and diversified according to market opportunities, and a significant reduction of the absolute poor in rural areas of the participating countries. This will provide a major contribution to the NEPAD target of a 6 percent increase per year in agricultural productivity, and halving the number of the absolute poor by the year 2015.

In the first phase, SADC MAPP will focus on two major objectives:

- Strengthen SADC R&D institutions in their efforts to become more pluralistic, responsive to updated regional priorities, and to participate in priority R&D activities in the SADC region, and,
- Make a significant contribution to enable farmers, especially smallholders, to have improved access to, and to increase the early adoption of productive, profitable, and ecologically sustainable technologies, as well as enhanced access to markets.

The ultimate beneficiaries of the programme are the crop and livestock farmers of the SADC region, with a particular emphasis on smallholders. The immediate beneficiaries will be the R&D institutions, outreach programmes, training institutes and facilities, farmers' organisations and markets across the region (including both public and private sector actors). By providing much needed support to the development of quality service institutions that are directly connected to addressing priority farmer problems, the livelihoods of the ultimate smallholder beneficiaries will be improved. As this is undertaken as a regional initiative, the potential for lesson learning and scaling out is markedly enhanced.

The measurable indicators of "success" will be the increased proportion of farmers that have access to, have been reached by, or have adopted improved and profitable technologies. By 2008, an effective sub-regional organisation (SRO) will have been established and will be enabling the implementation of priority R&D activities (which will be updated on a periodic basis). By the end of the second phase, there will be established and routine joint

[13] A key element in the MAPP strategy is the development of an institutional structure for SADC that will manage regional coordination functions. Sub-regional Organizations (SROs) are one such mechanism that has proved effective at providing a responsive institutional structure that allows stakeholders to benefit from the shared stock of knowledge and resources.

regional activities undertaken under SADC MAPP sponsorship, with sustainable financing, and with clear impacts on agricultural productivity. These activities will be supported in the form of regional sub-projects which will go through a comprehensive quality control process before they are funded, during implementation, and on completion. A regional sub-project will involve two or more countries within SADC designing and implementing a proposal which has a clear scaling out strategy in both (and possible more) collaborating countries, plus a sustainable long term uptake pathway.

2.4 SADC MAPP themes for phase 1

SADC MAPP is organized around a set of priority thematic areas which form the basis for achieving progress on the SADC MAPP objectives of improving agricultural productivity. The programme will comprise the following six themes and sub-themes:

Theme 1: Farmer empowerment and market access
- Sub-theme 1.1: Promoting good practice and capacity building in farmer empowerment
- Sub-theme 1.2: Promoting good practice and capacity building for agribusiness linkages and private sector development

Theme 2: Research and technology generation
- Sub-theme 2.1: Support to regional research priorities
- Sub-theme 2.2: Institutional capacity building of the NARS

Theme 3: Farmer led advisory services and innovation systems
- Sub-theme 3.1: Promote, adapt and scale-out best bet technologies
- Sub-theme 3.2: Advisory services reform and institutional capacity building

Theme 4: Education, training and learning systems
- Sub-theme 4.1: Building networks and partnerships for more innovative and responsive education and training systems
- Sub-theme 4.2: Regional education initiatives

Theme 5: Knowledge, information and communication
- Sub-theme 5.1: Communication for innovation and development
- Sub-theme 5.2: Information management

Theme 6: Institutional development and capacity building
- Sub-theme 6.1: Developing a Sub-regional organisation
- Sub-theme 6.2: Strengthening SADC FANR for enhanced complementarity with the SRO

The six themes and the proposed activities under each theme were reviewed by national consultants and were also presented to national workshops for stakeholder views and suggestions (see Annex 1). Consistently there was a strong endorsement of the chosen priority themes. Table 2.1 summarises results from the national workshops and country reports. Across the region as a whole, the themes are all given a significant priority (with some obvious, and expected, variation between countries depending largely on their current capacities). The consolidated information from the workshops indicates that the themes 'Farmer Empowerment and Market Access' and 'Knowledge Information and Communication' are regarded by stakeholders as central to technology dissemination and

adoption. The themes of 'Research and Technology Generation', and 'Farmer Led Advisory Services and Innovation Systems', were regarded as the next in importance, followed by 'Education Training and Learning Systems'.

Analysis of the country reports by national consultants highlighted that there are innovative activities going on in all SADC countries which offer benefit in a regional context, and that SADC MAPP would provide a unique and desperately needed mechanism for creating a framework for bridging the challenging gap between 'research' and 'development'. The analysis of the country reports and national workshops also revealed that there are many "best bet" improved technologies and practices available in the region. These could be scaled up/out to smallholder farmers in a regional context to make use of areas where there are some similarities in agro-ecologies, farming systems, and economic infrastructure. Technologies (especially improved crop varieties) have been released on the basis of their attributes of high yield, pest and disease resistance, maturity considerations and taste. Economic analysis, market access, processing, value addition, gender analysis, etc, were not considered in most cases. These are important parameters which need to be considered if agriculture in the SADC region is to become market oriented and commercialized.

Table 2.1: SADC MAPP Thematic priorities, by country[1]

Country	Farmer empowerment and markets		Research and technology generation		Farmer led advisory services and innovative systems		Education training and learning systems		Knowledge information and education	
	Workshop	*Report*	*Workshop*	*Report*	*Workshop*	*Report*	*Workshop*	*Report*	*Workshop*	*Report*
Angola	1	1	2	1	1	1	1	1	2	2
Botswana	1	-	1	-	1		1		1	
D.R. Congo	1	-	1	-	1	-	1	-	1	-
Madasgascar	1	-	1	-	2	-	1	-	2	-
Lesotho	1	1	1	2	1	1	2	2	1	1
Malawi	1	1	2	2	2	2	2	2	2	2
Mauritius	-	2	-	1	-	1	-	1	-	1
Moçambique	1	-	1	-	2	-	1	-	1	-
Namibia	1	-	1	-	1	-	2	-	2	-
South Africa	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Swaziland	1	-		-		-		-		-
Tanzania	1	1	2	2	1	1	2	2	2	2
Zambia	-	1	-	1	-	1	-	2	-	2
Zimbabwe	1	1	1	2	2	2	3	3	1	1

[1] SADC MAPP thematic priorities rated on a scale of 1-3, where 1 represents high priority, and 3 represents a lower priority. There is no ranking between the themes. Each theme was assessed separately in terms of its contribution to improved productivity.

Table 2.2: SADC MAPP Main Trans-boundary Thematic Activities/Activity Areas

PROPOSED ACTIVITIES/ACTIVITY AREAS	COUNTRY [ANG=Angola; BOT=Botswana; DRC=Democratic Republic of Congo; LES=Lesotho; MAD=; MAL=Malawi; MAU=Mauritius; MOZ=Mozambique; NAM=Namibia; RSA=Republic of South Africa; SWA=Swaziland; TAN=Tanzania; ZAM=Zambia; ZIM= Zimbabwe]													
	ANG	**BOT**	**DRC**	**LES**	**MAD**	**MAL**	**MAU**	**MOZ**	**NAM**	**RSA**	**SWA**	**TAN**	**ZAM**	**ZIM**
Theme 1: Farmer Empowerment and Market Access														
1. Capacity building and organizational issues	x	x	x	x	x	x	x	x	x		x	x	x	x
2. Infrastructure and marketing issues	x	x	x	x		x		x	x				x	
3. Inputs supply and subsidy	x	x	x			x	x	x			x	x		x
4. Farmer empowerment and access to credit facilities	x			x	x	x		x				x		
5. Agribusiness linkages			x	x	x		x	x				x		
6. Marketing and market strategies			x	x	x	x	x	x	x			x		x
7. Technology dissemination packs			x	x	x			x	x		x			x
8. Policy issues - land, inputs, marketing and farmer empowerment			x	x	x				x		x	x		
9. Sharing information and technology dissemination			x	x	x	x	x				x	x	x	x
10. Agro processing and storage structures			x				x	x	x		x	x	x	
11. Insurance issues in agriculture		x						x						
Theme 2: Research and Technology Generation														
1. Establishment of research and extension coordination structure	x	x	x	x	x			x			x	x	x	x
2. Capacity building of staff	x	x	x	x	x	x	x	x	x		x	x	x	x
3. Pluralisation of research and technology generation and private sector participation		x	x	x		x	x	x	x				x	x
4. Research funding and allocation of resources			x		x		x	x	x				x	x
5. Stakeholder collaboration and linkages	x		x	x			x	x			x	x	x	
6. Prioritisation of research activities	x		x			x					x		x	
7. Participatory approaches in R&D	x	x	x		x		x	x	x		x	x	x	x
8. Partnerships, networking and sharing information	x	x	x	x			x	x			x			x
9. Policy issues – inputs, research and marketing				x				x			x	x		
10. Labour saving technologies		x												x
11. Agro processing and storage structures			x				x	x	x		x	x	x	
12. Set up research incentives system				x	x	x					x		x	
Theme 3: Farmer-led Advisory Services and Innovation Systems														
1. Participatory approaches in advisory services		x	x		x	x	x	x	x		x	x	x	
2. Promote and scale out good practices and technologies	x	x	x	x	x	x	x	x			x	x	x	x
3. Capacity building of farmers and extension staff	x	x	x	x	x	x	x	x	x		x	x	x	x
4. Networking and exchange visits	x		x		x	x	x		x		x	x		x
5. Participatory monitoring and evaluation			x		x		x	x			x	x		
6. Farmer innovation initiatives and intellectual property rights	x	x		x	x		x	x	x		x	x		x
7. Technology dissemination packs			x	x	x			x	x		x			x
8. Pluralisation of advisory services				x	x						x			
Theme 4: Education, Training and Learning Systems														
1. Networking and partnerships between institutions	x	x	x	x	x		x	x	x		x	x	x	x
2. ICT and learning systems		x	x	x	x			x	x					
3. Curriculum reform	x	x	x	x	x	x	x	x			x	x	x	x

PROPOSED ACTIVITIES/ACTIVITY AREAS	COUNTRY [ANG=Angola; BOT=Botswana; DRC=Democratic Republic of Congo; LES=Lesotho; MAD=; MAL=Malawi; MAU=Mauritius; MOZ=Mozambique; NAM=Namibia; RSA=Republic of South Africa; SWA=Swaziland; TAN=Tanzania; ZAM=Zambia; ZIM= Zimbabwe]													
	ANG	**BOT**	**DRC**	**LES**	**MAD**	**MAL**	**MAU**	**MOZ**	**NAM**	**RSA**	**SWA**	**TAN**	**ZAM**	**ZIM**
4. Capacity building		x	x	x	x		x		x					
5. Provision of scholarships	x			x				x			x		x	
6. Specialised training institutions and courses			x	x	x	x	x		x		x	x	x	
7. Capacitate training institutions	x		x				x	x			x	x		x
Theme 5: Knowledge, Information Technology and Communication														
1. ICT and networking development issues	x	x	x	x	x			x	x		x	x	x	x
2. Knowledge and information sharing systems	x	x	x	x	x	x	x	x	x		x	x	x	x
3. Capacity building and ICT issues		x	x	x	x	x	x	x	x		x	x	x	x
4. Data base and networking system		x		x		x	x	x	x		x	x	x	x
5. Facilitate linkages with financial institutions									x				x	
6. Marketing and ICT issues		x				x		x				x		

Table 2.2 summarises the main thematic activities and activity areas that were identified as priority and common across Member States, based on the analysis and synthesis of the proceedings of the national workshops and the reports prepared by national consultants. Capacity building emerged as a common issue across all themes and for all countries. Within theme 1 (Farmer empowerment and market access), market reform and improved access to markets was also noted as shared by nearly all countries. Land reform was noted by Swaziland and Lesotho. Theme 2 (Research and technology generation) was dominated by capacity building. Research prioritisation was emphasized by Malawi, Swaziland, and Zambia, while incorporating farmer knowledge into research priorities was important to Lesotho and Tanzania. Within theme 3 (Farmer led advisory services and innovation systems) Madagascar, Malawi, and Tanzania emphasised the importance of developing pluralistic farmer support services, while only Madagascar was concerned about farmer characterisation and targeting issues. Theme 4 (Education, training and learning systems) generated considerable discussion in both the workshops and the country reports. Developing relevant and attractive training programmes for young people studying at schools, colleges and universities was noted by many countries, as was enhanced and innovative training needed to support the new emphases on pluralistic farmer support services. There was strong support for improved (and new approaches to) farmer training across the range of needs (from accessing markets, to experimenting with new technologies). Madagascar and Zambia stressed the value of farmer and professional exchange visits. Finally, for theme 5 (Knowledge, information and communication) information and communication technology was noted as very significant in many countries.

2.5 Detailed Description of SADC MAPP themes for phase 1

In the following paragraphs the underlying principles guiding specific themes and sub-themes are outlined. Although a number of activities are identified, it is expected that specific SADC MAPP work plans would be developed by stakeholders through regular regional consultations throughout the first phase of the programme. Thus, the full scope of activities presented here should be interpreted as a "menu" from which selection and prioritization of specific activities will take place during implementation based on the capacity and priority interests of

specific stakeholders, as part of a multi-country initiative (involving at least two SADC countries). Annex 2 provides the background information and analytical details on the themes and sub-themes presented in this document.

2.5.1 Theme 1: Scaling-out Farmer Empowerment and Market Access

This theme supports efforts to build the capacity of farmer groups and their national associations to play a more active role in enhancing access to markets (linkage to markets, to key technical/business management services and to inputs) and to enable national governments to establish initiatives supporting this theme. Farmer empowerment is central to this programme and will be attained by providing profitable and reliable options to farmers and by linking them to market opportunities. Intermediate outputs from this theme include:

- Improved enabling environment for expanded farmer access to improved and affordable inputs (with special attention to seeds and fertilizers) with (a) improved regional policies and strategies for expanding input supply and farmer access, and (b) improved arrangements for coordinating implementation of an action plan

- Enhanced good practices and capacities in farmer empowerment through (a) more effective farmer and producer organizations at regional and national levels, (b) improved enabling environment for farmer empowerment at the region and national level, and (c) greater farmer role in decision making at regional and national levels

- Increased and more effective agribusiness partnerships between farmer groups and private sector at both national and regional levels

SADC MAPP will support activities in two interlinked sub-themes: (i) promoting good practice and capacity building in farmer empowerment; and (ii) supporting initiatives geared at strengthening agribusiness linkages between smallholder farmers and the agribusiness sector.

Sub-theme 1.1: Promoting good practice and capacity building in farmer empowerment

The available data on farmers' organisations within SADC shows strong disparities both between the different countries and within each country. Farmer organisations need suitable institutional support if they are successfully to participate adequately in agricultural transformation. Regional SADC MAPP support will be focused on facilitating the spread of 'best practice' across the region rather than on providing some form of regional lobbying or coordinating body. The objective of SADC MAPP assistance under this sub-theme is to facilitate an enabling environment within the region for farmer-led agricultural development and the emergence of strong farmer and producer organizations linked to markets and to key technical/business management services and inputs. SADC MAPP support will be centred on promoting good practice and partnerships with a range of actors (public, private, market, research, advisory services), information sharing on good practices and lessons learned on farmer empowerment issues. SADC MAPP will also support advocacy and targeted capacity building to assist national systems to develop farmer empowerment mechanisms (that allow farmers to participate in decision making) and develop a supportive environment for farmer organizations, and capacity building to national systems on demand driven basis on how to use farmer organizations for real empowerment. Specific areas that could be supported include:

- Identification of good practice and partnership models through special studies, and dissemination of good practice and experiences through regional exchange visits, workshops and other media.
- Commissioned studies to evaluate, compare, and contrast the effectiveness of various empowerment strategies and policy bottlenecks and constraints that impede development or expansion of farmer or producer organizations.
- Commissioned studies to analyze regional or trans-boundary organisational and other constraints and opportunities faced by smallholders. Studies could assess regional or national policies and regulations, availability of services, infrastructure, and farmer or producer group organisational capacity, among others.
- Targeted support to regional or trans-boundary farmer or producer organizations to undertake specific advocacy activities or awareness-raising or sensitization events.
- Support to innovative pilot activities that are likely to enhance farmer empowerment.

A range of institutions are expected to participate in the activities under this sub-theme. These include national and regional farmer and producer organizations, NGOs and civil society active in supporting farmer empowerment or farmer and producer organizational development, private sector service providers, and national agricultural research, extension and education systems.

Sub-theme 1.2: Promoting good practice and capacity building for agribusiness linkages and private sector development

The objective of SADC MAPP assistance under this sub-theme is to develop processes that enhance the capability of smallholder farmers and farmers groups to access markets and to respond to market opportunities. SADC MAPP support will be centred on promoting good practice and partnerships, and support for advocacy and market access issues.

The SADC region already has a number of examples of successes in developing producer or farmer organization models, and smallholder–private sector agribusiness linkages. SADC MAPP will seek to promote examples of good practice that can serve as models in the region and provide a farmer-led basis from which to scale out (and modify as needed). Specific areas to be supported by SADC MAPP to promote good practice in agribusiness linkages include:

- Identifying and compiling good practice through a stocktaking study/assessment exercise with a focus both on farmer and producer organization development and models for agribusiness linkages
- Regional exchange visits to examples of good practice (involving farmers together with service providers and advisory services).
- Dissemination of good practice and experience through the use of media (conventional such as paper, video, and radio; as well as exploring the innovative use of new media opportunities). This will be achieved through commissioning special studies and calling for applications through the competitive grant process
- Technical assistance to generate specific recommendations on approaches and methodologies that can be scaled out or adapted within national systems, in particular identifying how agribusiness linkages can be created for smallholders and what capacity development is required to develop better services for them.
- Capacity building, through workshops and the provision of expertise in needed areas, will be an important focus.
- Support to innovative pilot activities that are likely to contribute to improved agribusiness linkages.

Farmer and producer organisations also require partnerships involving both private sector and public sector actors, and covering a wide range of activities – research and advisory services, market information, business management, group organization, lobbying and advocacy, and financial services. SADC MAPP support will include provision of technical assistance and capacity building to facilitate the development of specific partnerships with agribusiness players. The programme will also provide initial support in developing strategies and institutional linkages. Capacity building activities within Member States will be undertaken on a demand-led basis and could involve the support of pilot initiatives for learning through use of the innovation fund. The 'learning by doing' focus will also be employed so that best experience in partnership development can be spread throughout the region, and adapted to local circumstances as required.

Facilitating the contribution of empowered farmer organisations to national and regional agricultural policy dialogue requires active support for advocacy and generation of new knowledge on key policy issues. SADC MAPP will support advocacy and knowledge creation activities to provide input into national and regional policy forums. Areas that could be supported to promote strong partnerships with agribusiness include:

- Targeted support to regional or trans-boundary farmer or producer organizations to undertake specific advocacy activities or awareness-raising or sensitization events.
- Commissioned studies to analyze regional or trans-boundary market dynamics and the constraints and opportunities faced by smallholders in accessing such markets. Studies could assess regional or national policies and regulations, availability of services, infrastructure, and farmer or producer group capacity, among others.
- Support to innovative pilot activities that are likely to contribute to improved agribusiness linkages.

A range of institutions are also expected to participate in the activities under this sub-theme. These include national and regional farmer and producer organizations, NGOs and civil society, private sector input suppliers, agro-processors, marketing agents (i.e. the full range of actors along value chains), private and public service providers, and national agricultural research, extension and education systems.

2.5.2 Theme 2: Research and Technology Generation

Generation of appropriate technology is one of the essential enabling conditions to ensuring increased agricultural productivity. More effective investment in farmer centred agricultural research and technology generation is needed to underpin farmer innovation and provide solutions to emerging agricultural problems within the SADC region. Among SADC Member States there is also scope for greater cooperation and coordination to address shared research priorities and to mobilize their scarce national resources more effectively. SADC MAPP will contribute to the generation of technologies with trans-boundary benefits and will facilitate NARS in developing systems that generate reliable and economical technologies that respond to the priority needs of farmers. SADC MAPP assistance under this theme will comprise two sub-themes: (i) support to regional research priorities, and (ii) institutional capacity building for more effective NARS.

Intermediate outputs from this theme include:

- Strengthened support to addressing regional R&D priorities through (a) increased access to and generation of, and of adaptation of technologies at the regional and

national levels, and (b) increased joint activities to undertake research on regional priorities

- Strengthened institutional capacities to carry out the regional R&D research priorities and improve the responsiveness of NARS to their stakeholder
- "Best-fit" agricultural technologies are adapted, adopted, and scaled-out.
- Farmer advisory services and supporting institutions are reformed and strengthened, consistent with the regional R&D priorities

Sub-theme 2.1: Support to regional research priorities

The objective of SADC MAPP assistance under this sub-theme is to support research activities that generate regional or trans-boundary benefits. This will be accomplished by supporting efforts to strengthen partnerships between national, regional and international research institutions and financing research activities on identified regional research priorities.

Promoting partnerships and networks**:** SADC MAPP will support the development or expansion of partnerships and networks, and will promote pluralism of the NARS – involving linkages with a range of actors (public, private market, research and advisory services) in order to foster knowledge sharing and coordinated action on common research priorities. Specific areas where SADC MAPP could provide support include:

- Developing a process of priority setting in-country assessment and national stakeholder workshops to identify key constraints and opportunities for agricultural research and development, and identify the broad priorities for research and technology generation within participating Member States. The outputs of the national assessments and workshops would in turn lead to the identification and setting of regional research priorities and would generate key thematic thrusts for the SADC region. Involvement of the entire NARS will be critical for programme buy-in and to ensure relevance.
- Technical assistance and initial operational support to promote partnerships growing out of the identification of regional research themes. This could include existing research networks that address technology generation within thematic thrusts, and the development of new partnerships or networks.
- Support to regional research networks and to specific priority research projects and activities. SADC MAPP support will be provided to facilitate knowledge sharing and exchange visits between research scientists sharing common interests.
- Support for regional forums where scientists and networks present their research findings. Funds will be made available for the publication and distribution of the conference and workshop proceedings including support to publication at the regional level of annual reports for projects funded under SADC MAPP and other regional publication. Consideration will be given to the support of a journal of agricultural research for the region.

A key principle of the sub-theme activities will be collaboration among the NARS and partnerships with the relevant IARCs and advanced research centres and universities in the region and internationally. The partnerships and collaboration will promote the principle of subsidiarity in research and development and the need to strengthen and to build the capacity of weaker research institutions. In this regard, the identification of centres of leadership or

networks of specialisation[14], and the mechanisms of nurturing weaker institutions, will be determined and agreed upon as part of establishing the research networks.

Financing regional research: building on the partnership and network activities described above, SADC MAPP will finance a regional research programme through a mix of competitive and commissioned grants for NARS within the SADC region, as well as through institutional grants to support centres of leadership or networks of specialisation. The research focus of the grants will be drawn from the regional priority setting exercise and will focus on emerging high priority areas linked to SADC regional policies and opportunities. The aim of SADC MAPP support is to make regional technology development and transfer in the SADC region more cost-effective, pluralistic and efficient by fostering partnerships in the development and implementation of regional client-driven research and development networks and projects.

A proposal and criteria based system will be developed to make grant awards. This will use a mix of competition to solicit initial proposals and directed activities to refine and develop specific research protocols. Details of the financing mechanisms, processes and eligibility criteria for grant awards are presented in detail in section 4.1 of this document

Sub-theme 2.2: Institutional Capacity Building of the NARS

Under this sub-theme SADC MAPP will strengthen NARS to participate in regional research activities and to develop research and technology generation systems that are demand led and market oriented. Institutional capacity building under this sub-theme will centre on supporting two main thrusts: (i) institutional reform and change processes, and (ii) capacity building to participate in regional research activities through competitive grant and other funding schemes.

Support to institutional reform and change processes: as NARS move towards developing more pluralistic, market oriented, and farmer led research and innovation systems, they may require outside knowledge or specialized assistance to facilitate institutional development or change processes. This sub-theme will support capacity building to national systems to undertake demand driven reforms to research and technology generation systems. Support could be provided for:

- A situation analysis of research planning, management and funding in the SADC Member States. The findings would be used to develop training and advocacy programmes promoting institutional reform and change management in agricultural research and management as appropriate for individual NARS, and to promote effective stakeholder participation in the governance of the research agenda.
- Support to pilot activities and innovative initiatives likely to contribute positively to institutional reform.
- Technical assistance and training to support national systems by bringing in capacity from the region and elsewhere to assist in institutional strengthening.
- Promoting sharing of experiences between NARS in the different Member States by funding regional workshops and exchange visits, and dissemination of relevant information.

[14] RUFORUM has successfully pioneered this innovative model for regional cooperation based on mutual self-help and capacity building between stronger and weaker institutions. See section 2.5.4 below

Capacity building for competitive grant and other funding schemes**:** NARS within the SADC region vary substantially in their ability to participate in regional research activities. Recent experience with regional competitive grants schemes has shown the need for greater capacity building to develop and implement cooperative regional research programmes, and the need to widen the range of funding mechanisms beyond the traditional competitive grants. The focus of this sub-theme will be on building the capacity of the regional NARS institutions for generating and implementing high quality research and development proposals, and for spearheading regional collaborative programs, including joint programs with the private sector, through training and technical back-stopping. The types of activities SADC MAPP could support include:

- Initial needs assessment to identify training and capacity building needs;
- Technical assistance and training to support capacity building to national systems on how to prepare research proposals and bids for competitive funds and other funding mechanisms, and how to participate effectively in special studies through regional teamwork.

Any activities and joint training programmes will be closely associated with the implementation of research programmes under sub-theme 2.1.

2.5.3 Theme 3: Farmer-led Advisory Services and Innovation Systems

SADC MAPP support under the third theme will be focused on two sub-themes. The first facilitates the creation of an enabling environment for advisory services and effective innovation systems through advocacy, capacity building, knowledge sharing, and technical assistance to national reform initiatives. The second sub-theme responds to the need for expanding the sources of knowledge and technology as well as the opportunities available to farmers to address issues of poverty, equity and income generation by supporting "best bet" technologies.

Sub theme 3.1: Advisory services reform and institutional capacity building

The objective of SADC MAPP support under this sub-theme is to facilitate regional and trans-boundary forums for a range of actors to foster partnerships and enable regular exchange, learning and coordination. There are some good examples of advisory service reform and participatory technology development in the region that can serve as models for others. Decentralization and emerging farmer organizations can serve as a basis for creating a facilitating environment for farmer-led advisory services. Specific areas that SADC MAPP could support include:

- Promoting information sharing on good practice in advisory services, and lessons learned.
- Promoting partnerships, networking and linkages with a range of actors: public, private, market, research, advisory services (including the Sub-Saharan Africa Network on Advisory Services (SSANAAS)).
- Continuous learning by doing: learning from implementation of partnerships (what works and does not) and assessing partnership experiences.
- Capacity building for national systems on demand basis on how to reform advisory services.

- Advocacy and targeted capacity building to assist national systems to develop market-oriented, farmer-led and demand-driven advisory services and innovation systems.
- Advocating for a supportive policy and institutional environment for effective advisory services and innovation systems (including farmer organizations, farmer experimentation and building research-advisory service-farmer and other Agricultural Knowledge and Information System (AKIS) stakeholder linkages).

Sub-theme 3.2: Promote, adapt and scale-out best-bet technologies

There are a number of existing technologies, knowledge methodologies and participatory methods from within the region, the continent and beyond that are now widely accepted and can be employed for scaling out within the SADC region through extension systems (see Annex 3). SADC support at the regional level could include:

- Development of inventories of potential and sustainable technologies and practices for scaling out in the region.
- Regional exchange visits to learn about technologies and practices identified in the inventory.
- Support to national systems to promote methodologies and share successful experiences in market and farmer-led technology utilization and application (e.g., Dissemination of New Agricultural Technologies in Africa (DONATA)).
- Information sharing and dissemination through regional workshops and training and using other media.
- Support to piloting to test adoption of new technologies

2.5.4 Theme 4: Education, Training and Learning Systems

Agricultural education and training (AET) is a critical investment in the effort to create needed change in African agricultural systems. The investment in capacity (both in terms of human skills and the infrastructure needed to build and enhance the outputs from those skills) is an essential part of the process of helping improve agricultural productivity. Although there is a substantial unmet demand in both public and private sectors for skilled individuals at all levels in agriculture, opportunities exist within the region to help meet some of these needs. A significant core of qualified staff exists at SADC universities. Through their RUFORUM[15] regional initiative, the universities have also developed a strategy for coordinated and balanced regional development through by focusing on regional 'centres of leadership'. Several of these centres are already active in farmer-orientated research and outreach. There are valuable examples of reforms in pedagogy towards more learner-centred approaches and curricular development that can be scaled out. These include advances in the use of distance learning and ICT which provide new avenues for widening access to AET. The region also has significant sources of talent – from the young (students, farmers) to the more mature (farmer leaders, university professors) that show a clear willingness to participate in, and contribute to, an enhanced AET system.

The aim of SADC MAPP support under this theme is to contribute to the development of education, training and learning systems that provide the human and social capital needed for responsive, productive and farmer oriented innovation systems. Intermediate objectives

[15] The Regional Forum for Capacity Building in Agriculture with a secretariat at Makerere University in Uganda but with a majority of participants from within SADC region

include facilitation of: (i) sustainable systems that support life-long learning and that engage the full range of stakeholders – farmers, students, researchers, service providers, and policy makers; (ii) developing an enabling environment for education and learning systems through advocacy, capacity building, knowledge sharing, and technical assistance to national reform initiatives; and (iii) active participation in, and feedback from, stakeholders into the educational system. SADC MAPP support under the theme will comprise two sub-themes: building networks and partnerships for more responsive education and learning systems, and regional education initiatives.

Intermediate outputs from this theme include:

- Enhanced regional networks and partnerships for more innovative and responsive agricultural education and training systems,
- More effective learning systems that support regional R&D innovation and training,
- Strengthened regional education initiatives and increased stakeholder capacity for regional R&D.

Sub-theme 4.1: Building networks and partnerships for more responsive education and learning systems

The implementation of well focused training programmes at all levels – from the farmer through to programme designers – is essential to creating the climate in which innovation and effective pro-poor initiatives can take root. SADC MAPP will build on this experience.

Promoting good practice: Under this sub-theme, SADC MAPP will identify and spread good practice in curriculum development and student-, woman- and learner-centred educational initiatives. It will build on the examples of successful experiences in institutional reforms in educational systems, and lifelong learning approaches that are in place in the region and beyond. This will embrace non-formal training as well as the formal degree and diploma based programmes and other educational levels, such as the incorporation of agriculture into primary and secondary education. A programme of dissemination of good practice and experience could be undertaken through the use of media (conventional such as paper, video, and radio; as well as exploring the innovative use of new media opportunities).

Promoting partnerships: A regional approach to AET can be a powerful tool for SADC institutions to respond to new challenges and common interests. There are opportunities which can be exploited by more effective 'mainstreaming' of AET institutions and developing joint regional partnerships. Specific activities under SADC MAPP that could support this include:

- An inventory to understand the dynamics within the region's education and learning systems (what is happening to students, what is the demand in the private sector, what interactions are required to promote innovation, etc), including lessons from other fields such as health;
- Creating partnerships which 'mainstream' AET activities and institutions within a demand-led farmer-orientated programme of action;
- Opportunities for using ICT for building partnerships and distance and e-learning (both traditional and non-traditional), and facilitating the use of mass media and ICT opportunities to improve curriculum, delivery and access to materials and literature;

- Mechanisms to facilitate the networking and partnerships between educational systems and research, and advisory services systems and farmer organizations for innovation; (v) Regional exchange and internships
- Capacity building and training for national systems to introduce new methodologies and to update education and learning systems; and
- Support for other regional efforts, such as RUFORUM, to commission special studies to identify regional centres of leadership in AET. Such centres can then be provided with support, including technical assistance as necessary.

Sub-theme 4.2: Regional education initiatives

The economies of many SADC countries need manpower with current and specialised agricultural knowledge. Most SADC countries came to independence with very limited human capacity, as national training institutions were developed, so an increasing amount of advanced education was done in country, and overseas scholarships were phased out. Universities and colleges of agriculture were often set up with considerable capital expenditure, support for the development of training programmes, and technical assistance. But long term consistent support (both from national governments and donors) has largely been lacking. AET institutions have often starved of resources and skills, and ill-equipped to respond to a new environment resulting in a decline in human capital in key areas. In addition to the need for partnerships and coordination to strengthen AET institutions, there is also a need to fill the immediate gaps in skills that exist within the region.

This sub-theme would contribute to addressing some of these issues. SADC MAPP will coordinate access to learning opportunities by acting as an intermediary for providing access to scholarships (such as the proposed FARA supported BASIC and SCARDA programmes) and other regional efforts to enhance human capital.

2.5.5 Theme 5: Knowledge, Information Technologies and Communication

Building human and social capital to improve agricultural productivity requires increased and improved knowledge and information sharing through effective use of communication methods, media channels and processes. In recent years, there have been revolutionary advances in digital and internet-based information and communication technologies (ICTs). A new information economy has emerged where trade and investment are global and businesses compete within a context of global knowledge and information. For all countries, these changes mean major adjustments to harness information for economic and social development. However, many smallholder farmers have largely been by-passed by knowledge, technology and information exchange systems. Empowering smallholders to improve agricultural production efficiency and to generate income through market engagement is a process that requires better access to appropriate information and the generation of local knowledge to shape existing and new technologies to suit local situations.

There is both a need and opportunity to improve knowledge and information sharing and communication capabilities of farmers, researchers, advisory service providers, educators, local government officials, marketing agents and others that work with them. Enhanced internet access and better electronic communication procedures to obtain, validate and implement knowledge for local use are feasible options that could improve the situation. Currently, there is limited availability and inappropriate content for smallholders, women and rural populations in general. Farmer advisory service providers and even communication practitioners lack skills in how to use ICTs for development, including how to design multi-

media strategies that combine ICTs with more traditional media (e.g., radio, video, print) through the digital convergence that brings them together.

ICTs can be harnessed to help remote rural people, smallholder farmers and marginalized groups participate more actively in economic and social development. In some cases, the ICTs, along with more traditional media, such as rural community radio and participatory video, are being used to empower farmers and rural people to direct their own development processes, including through improved market linkages (see Annex 3 for examples) .

Good experience exists in the region for using ICTs that can serve as a model for others. Additionally, ICTs have high potential for spillover and economies of scale. They can support disaggregated and decentralized information systems that provide farmers and other AKIS actors ways to interact as both users and providers of content. Specific ICT applications (e.g. GIS, satellite imagery) can provide unique opportunities to address agricultural issues, such as land use and planning, weather prediction, and disaster and early warning. There is also opportunity and some experience in the region for using ICTs to bridge education and training gaps through distance learning systems.

The aim of SADC MAPP support under this theme is to facilitate an enabling environment for broad based and equitable access to information and communication technologies (both traditional media and new digital based ICTs) that provide content supporting farmer-centred innovation and empowerment and to link different stakeholders (men and women farmers, researchers, service providers, marketing actors, public sector, civil society, and others) within the agricultural knowledge and information systems.

Intermediate outcomes from this theme include:

- Improved regional knowledge generation and capacity to support and contribute to enhanced regional ICT activities, and,
- Enhanced knowledge sharing and participation of stakeholders in scaling out R&D activities through increased use of ICT within the region

SADC MAPP support under this theme will cut across themes 1 to 4 above. Specific areas where SADC MAPP could provide support include the following:

SADC MAPP will support activities in two interlinked sub-themes:

- Communication for Innovation and Development
- Information Management

Sub-theme 5.1: Communication for Innovation and Development

The importance of knowledge as an economic resource has long been recognized. In agriculture, as is for other sectors, knowledge is a key resource. However, in agriculture, many small-holder farmers have been by-passed by knowledge, technology and information exchange systems. Empowering smallholders to improve agricultural production efficiency and to generate income through market engagement is a process that requires better access to appropriate information and the generation of local knowledge to shape existing and new technologies to suit local situations. It is imperative that appropriate information is availed to all agricultural stakeholders (researchers, extension agents, farmers and private traders). Consequently, farmers will be able to access technology and market information in order to respond appropriately to market demands. There is need also to build farmers' capacity to

decipher information to make informed production and marketing decisions and to strengthen their negotiating skills.

The use of ICT has considerable potential as a vehicle for promoting stakeholders' access to information. However, there has been a lack of capacity especially in SADC member states to develop the knowledge embodied in people, technology and institutions necessary to meet the challenge of higher yields and intensified agricultural production. The response to this requires putting in place effective and stable agricultural knowledge and information systems (AKIS).

Specific areas to be supported under this sub-theme include:

- Knowledge sharing on good practice and successful examples of ICT policy, strategy and used in the region and elsewhere including looking beyond agriculture to identify experience in other sectors (e.g., tele-medicine, e-commerce);
- Accessing specialized international ICT expertise to share knowledge and provide training at the regional level focusing on ICT tools and network linkages best suited for specific national and regional needs, including those that focus on such topics as weather prediction, disaster preparation and mitigation, land use, mapping and GIS.
- Development of networks and partnerships between communication practitioners nationally and regionally and linking them to other stakeholders.
- Regional ICT interventions that would benefit the research/ extension, private sector and be adapted and amenable to reach smallholder farmers and therefore enhance farmers' capacity to take informed decisions and strengthen their negotiation position, in relation to, but not limited to, price information and market access.

Sub-theme 5.2: Information Management

There is both a need and opportunity to improve knowledge and information sharing and communication capabilities of farmers and the researchers, advisory service providers, educators, local government officials, marketing agents and others that work with them. Enhanced internet access and better electronic communication procedures to obtain, validate and implement knowledge for local use, are feasible options and would improve the situation.

Farmer advisory service providers and even communication practitioners lack skills in how to use ICTs for development, including how to design multi-media strategies that combine ICTs with more traditional media (e.g., radio, video, print) through the digital convergence that brings them together. ICTs can be harnessed to help remote rural people, smallholder farmers and marginalized groups participate more actively in economic and social development. In some cases, the ICTs, along with more traditional media, such as rural community radio and participatory video, are being used to empower farmers and rural people to direct their own development processes, including through improved market linkages.

Good experience exists in the region for using ICTs that can serve as a model for others. Additionally, ICTs have high potential for spill-over and economies of scale. They can support disaggregated and decentralized information systems that provide farmers and other AKIS actors ways to interact as both users and providers of content. Specific ICT applications (e.g. GIS, satellite imagery) can provide unique opportunities to address agricultural issues, such as land use and planning, weather prediction, and disaster and early

warning. There is also opportunity and some experience in the region for using ICTs to bridge education and training gaps through distance learning systems.

There is both a need and opportunity to improve knowledge and information sharing and communication capabilities of farmers, researchers, advisory service providers, educators, local government officials, marketing agents and others that work with them. Currently, there is limited availability and inappropriate content for smallholders, women and rural populations in general.

The SADC MAPP information management sub-project should be integrated to the main SADC FANR data and information system, the Agricultural Information Management System (AIMS). As a result of the Dar es Salaam Extra-Ordinary meeting on Agriculture Food Security, in 2003 the Council of Ministers meeting in Luanda, Angola approved the creation of one SADC FANR integrated system – the AIMS. There are good reasons why there should be an integrated data and information system:

- Each Coordination Unit/Programme needs data and information to guide its activities and programmes;
- Efforts put in data collection and archiving differed among Units/Programmes: some data/information have been lost as they were run by projects which ended;
- Inevitably overlapping and duplication of efforts are common;
- Incompatibility of data formats and software used – hence difficult to use data from the various sources.

The creation of the AIMS is meant to act as the knowledge-bank of the SADC Secretariat and Member States on Food, Agriculture and Natural Resources to which programmes and projects contribute through their information systems. A database within AIMS will constitute both quantitative and qualitative data on all FANR activities. Data to be gathered should be defined in response to an expressed need, in order to answer current and anticipated questions.

Specific areas to be supported under this sub-theme include:

- Knowledge generation on use of ICT and other media to support smallholder innovation and improve access, participation and ownership in knowledge and information systems. Could include assessment of potential cutting-edge use of ICTs and in combination with other media such as rural radio and participatory video and local information access points such as community telecentres for farmer-to-farmer exchanges, market engagement, e-learning and for local commercial ICT service providers to develop and maintain information that is relevant for local farmer organizations and the farm advisers, researchers, marketing chain intermediaries, NGOs and others that work with them.
- Capacity strengthening using specialized national and regional training for stakeholders on communication for development targeting advisory service providers, communication practitioners, farmer organizations, community-based organizations and others, including technical assistance for the design of communication strategies and campaigns and the use of ICTs and media in support farmer-centred innovation.
- Member states needs assessments and analysis of requirements, existing resources and capabilities such as the design for a sustainable information systems infrastructure, tools and software development, installation and testing;

- Building capacity within FANR and Member States in data gathering, analysis, dissemination and exchange – management/executive seminars & training courses.

2.5.6 Theme 6: Institutional Development and Capacity Building

In order for national agricultural research and extension systems (NARS) to be able better to support farmer-led innovation, they will need to increase their access to knowledge or experiences that are relevant to their own priorities, cooperate with other NARS on areas where they have shared interests, and reform or change systems where they think other approaches would be more effective. The objective of this theme is to support NARS in this process by providing a regional platform from which to mobilize and share knowledge from within the region and beyond. A key element is developing an institutional structure and effective mechanism from SADC that will take on or manage more effectively some of the regional coordination functions. Sub-regional Organizations (SROs) are one such mechanism that has proved effective in East/Central Africa and West Africa[16] at providing a responsive institutional structure that allows stakeholders to benefit from the shared stock of knowledge and resources.

This theme consists of two sub-themes: (i) support to the development of an SRO to coordinate the implementation of SADC MAPP; and (ii) strengthening SADC FANR for enhanced complementarity with the SRO. Intermediate outputs under this theme include:

- Successful establishment and effective functioning of a semi-autonomous regional organization (SRO), and,
- Enhanced FANR capacity to carry out its policy, integration, and coordination roles, with regards to the regional R&D agenda, and enhanced complementarities with the SRO

Sub-theme 6.1: Developing and Strengthening a Sub-regional organization (CARDESA)

SADC MAPP will provide support to establish and strengthen a new organizational body with additional core staff to assume the day-to-day technical coordination of regional activities. Stakeholder consultations to date indicate a strong preference for an SRO placed outside the organizational structure of the SADC Secretariat, but closely linked to the SADC Secretariat through an MOU establishing the nature and scope of its autonomy and complementarity with the FANR Directorate. A design of the institutional structure and the requirements to establish the SRO (proposed to be called CARDESA) has been developed through a separate study, combined with various country and regional consultations with diverse stakeholder groups. SADC MAPP will provide the following types of assistance in developing CARDESA:

- Core institutional support for a SRO structure. This will include financing for a relatively lean and effective technical secretariat and the associated establishment, operational and staffing costs;
- Technical assistance to develop the appropriate operational systems, financial management, monitoring and evaluation arrangements and other technical requirements in order to manage the first few years of start-up within the institution

[16] Information on the role and effectiveness of SROs and their contribution to the CAADP process are provided in Chapters 1 and 4 of this document, as well in Annex 5

- Partnership building to avoid over-centralizing functions within CARDESA. An important step in establishing the proposed CARDESA will be to identify and develop partnerships with other complementary regional institutions in order to build on on-going initiatives, and to avoid creating an overly large SRO structure or duplicating existing capacity within other regional institutions. SADC MAPP will provide operational assistance to partners managing SADC MAPP activities (or sub-projects) arising from the MAPP grant scheme to participating regional agencies, based on transparent procedures and eligibility criteria, which also will be used to harmonize donor approaches to similar assistance.
- A visiting expert/scientist and young professional programme to guide implementation of SADC MAPP and enable exchange of knowledge and capacity building, while keeping the overall size of the technical secretariat small.

Sub-theme 6.2: Strengthening SADC FANR for enhanced complementarity with the SRO

This sub-theme will support activities to strengthen SADC FANR to achieve enhanced capacities to better coordinate and promote agricultural technology policies, strategies, monitoring and evaluation for its Member States and multiple stakeholders. In particular the sub-theme will provide:

- Support to FANR to participate in SRO related activities. SADC MAPP will provide facilitation for FANR's core budget to enable them to actively participate in SADC MAPP activities and link closely with the SRO. This will include some operational assistance to facilitate information sharing, joint reviews and planning exercises;
- Knowledge resources to support FANR priorities. In line with its function to provide support to shared regional priorities, SADC MAPP will provide specialized studies or assessments that support FANR in fulfilling its mandate within the Secretariat to provide strategic planning and management of programmes of SADC; submission of harmonized policies and programmes to the SADC Council of Ministers for consideration and approval; and monitoring and evaluating the implementation of SADC regional policies and programmes, including periodic updating, in a participatory manner, the SADC R&D Framework for Pillar IV; and
- Support for information management and facilitating the compiling and analysis of national knowledge and data for the Regional Agricultural Information and Learning Systems (RAILS) and the Agricultural Information Management System (AIMS) and other regional information management initiatives; and
- Capacity building for creation of an integrated information platform at regional level through FANR.

2.5.7 Major Cross Cutting Issues

There are a number cross cutting issues that influence farmer organizational capacity, new technology generation, advisory service provision and agricultural education systems, and institutional service delivery of R&D activities. Gender, human health and climate change are such major cross cutting issues. Gender roles and the growing impact of HIV/AIDS are important in determining farm level agricultural productivity and require specialized responses from national and regional NARS. Actual activities supporting these cross cutting issues will be implemented through the core themes identified above, but key areas where SADC MAPP could play are highlighted below.

Gender: gender specific roles in agricultural production are common within the SADC region, but many agricultural knowledge and information systems face challenges in adequately responding to gender specific issues. Women often have different tasks or are even involved in different income generating activities than men. Services that improve women's tasks, labour productivity, and income generating facilities specifically have good potential for enhancing household wellbeing and agricultural productivity. In general, there is still scope for learning how to determine gender specific needs and opportunities and to develop technologies and services within the Agricultural Knowledge and Information System (AKIS) to address these. Key areas where SADC MAPP could provide support at the regional level include: (i) promoting regional information sharing and knowledge exchange on good practice experiences in addressing gender issues in service provision and technology generation; and (ii) capacity building through joint training on gender awareness within AKIS.

Health Issues**:** The impact of HIV/AIDS is being felt throughout agricultural systems within the SADC region[17]. Because HIV/AIDS affects the most productive age group, it is having a devastating impact on agricultural labour and agricultural service providers in the SADC region. Most NARS in SADC have lost many professional staff, with the disease reducing the number of scientists and extension agents at overwhelming rates. Likewise, the death of productive adults has left many villages in the SADC region with fewer experienced farmers and a large share of malnourished children and under-employed or unemployed young adults. The reduced availability of adult labour and skills also creates a greater burden on the family, leaving the females as widows with limited income sources, as resources are diverted into caring for the unwell.

Creative regional approaches are needed to prevent and mitigate the effect of HIV/AIDS on the provision of key services and in the organisation of labour and rural resources for production. Key areas where SADC MAPP could provide support include: (i) regional knowledge exchange and coordination on generation of labour saving technologies/strategies - successful examples include the use of tools or practice such as mechanization, herbicides, conservation farming, and promotion of value adding crops for HIV/AIDS affected households; and (ii) coordination at the regional level to identify gaps within national systems and develop strategies to re-build human capital through joint activities or training at the regional level; (iii) coordinate closely with on-going HIV/AIDs regional and national programs, and draw on these lessons for scaling-out through the SADC MAPP stakeholder networks.

Climate change: Climate change is one cross-cutting issue that is drawing increasing attention globally. Although industrial development activities are probably the main cause of global warming due to the emission of green house gasses (GHGs)[18], agricultural and forestry management practices and activities do have an influence on the GHG emissions and, consequently, on climate change. Forests, through growth of trees and an increase in soil carbon, contain a large part of carbon stored on land, and most carbon stocks of croplands and grasslands are in the below-ground plant organic matter and soil. Human activity, through land use, land use change and forestry activities, affect changes in carbon stocks between carbon pools of the terrestrial ecosystem and between the terrestrial ecosystem and the

[17] Food consumption has been found to drop by 40 percent in homes afflicted by HIV/AIDS; globally, Southern Africa is the region most affected by the pandemic. AIDS has killed around 7 million agricultural workers since 1985 in the 25 hardest-hit countries, mostly in east and southern Africa, where AIDS-related illnesses could kill 16 million more before 2020, and up to 26 percent of their agricultural labour force within two decades (World Bank, World Development Report, 2008).

[18] Mainly carbon dioxide, methane, nitrous oxide and ozone

atmosphere. Therefore, management and/or conversion of land uses affect sources and sinks of carbon dioxide, methane and nitrous oxide. This in turn affects GHG emissions.

In general mitigation options relate to improvement of management, such as:

- Improved forest management by reducing GHG emissions from deforestation, degradation and de-vegetation
- Improved crop and grazing land management through improved agronomic practices, nutrient use, tillage practices and residue management.
- Conservation, including restoration of organic soils that are drained for crop production, and restoration of degraded lands

Compared with other regions of the developing world like Brazil and India, Africa and Southern Africa in particular have not made full use of the opportunity in addressing the issue of climate change and in developing projects that can contribute to the reduction of GHG emission and benefit from investment in environmentally-friendly technology from developed countries under the Clean Development Mechanism (CDM) of the Kyoto Protocol. It is essential for the SADC region and individual member states to address seriously the issue of climate change. This would include:

- Establishing the main agricultural and forestry activities and practices and their contribution to GHG emissions
- Mainstreaming climate change in agricultural R&D projects and programmes and to ensure that new technologies are environmentally friendly.
- Identifying and promoting best practices. For example, more and more research internationally points to the fact that organic, biodynamic, permaculture and related sustainable farming practices help to mitigate and reverse the effects of global climate change. Research should therefore be targeted at finding solutions to the factors that limit the uptake of these practices.

It should also be recognised that much of what is now being experienced as climate change is a direct result of the social structures that have been developed in the pursuit of endless growth in a finite world. Science needs to recognize this as part of the problem, and alternative approaches and paradigms to the science of life need to be looked at that have more beneficial outcomes than current experience. Because every aspect of life is affected by any climate change, the criteria for screening all proposals to be funded under SADC MAPP should ideally include the requirement to demonstrate how the new technology, innovation or practice either sinks, decreases or prevents GHG emissions.

Intellectual Property Rights (IPR): Intellectual Property is a broad term for the various rights that the law gives for the protection of economic investment in creative effort. The principal categories of intellectual property which are relevant to agricultural research are proprietary rights patents and plant variety protection (PVP) rights and confidential information in biological resources, copyright and data rights, trademarks and industrial designs. IPRs in agriculture are frequently used to protect technological advances. These rights allow their owners to exclude competitors from "making, using, offering for sale, or selling" an invention for a limited period of time.

Since SADC MAPP intends to identify existing and new best bet technologies and knowledge from within the region and elsewhere that can be scaled out through the extension systems, this raises the issue of intellectual property rights of the individuals, institutions or

communities that own such technologies or knowledge, and the need for recognition and protection of those rights. It is recommended that as part of the readiness-for-implementation phase of SADC MAPP, a study be conducted to provide guidelines on how intellectual property rights can best be addressed during the programme implementation. That study should draw on the reports from the national stakeholder consultation workshops and from reports by national consultants summarised in Tables 2.1 and 2.2.

Policy and strategy issues: sound policy making and implementation are at the core of the SADC MAPP. As a cross cutting issues, the programme would focus on strengthening the capacity of SADC Secretariat (particularly through strengthening the FANR Directorate) and Member States in the area of agricultural development policy. The programme will support capacities in critical areas in policy-making and implementation, policy related activities such as trade issues and regional market integration; definition and enforcement of regulations, guidelines and standards, in particular in the areas of inputs/seeds, sanitary phytosanitary standards (SPS), food safety and pest management; agricultural statistics, and regional level M&E of strategic indicators. The programme will also prepare detailed analytical studies and action plans on selected strategic issues of priority interest to the regional stakeholders (in close coordination with the SADC FANR Directorate).

3. PROGRAMME COSTS AND FINANCING

3.1 Summary of Programme Costs

Programme costs for activities not currently financed by existing projects within the region have been estimated for each theme. Tables 3.1 and 3.2 represent a summary breakdown of the additional funds required to fully implement SADC MAPP (new expenditures). Programme costs are based on standard unit costs currently in use within the SADC Secretariat and estimates on the size of sub-project grants. Sub-projects are assumed to range from US$ 500,000 to US$ 2.25 million. All costs are estimated in US$. A full breakdown of costs estimates by theme and sub-theme are presented in Annex 7.

Table 3.1 Summary of New Programme Costs by Category of Expenditure

Expenditure Category (in US$ '000s)		
	Total	**%**
I. Investment Costs		
A. Goods	183	0
B. Services	11,371	15
C. Sub-Project Grants	39,370	51
D. Training, Workshops and Meetings	17,386	22
	5,654	7
Total Investment Costs	**68,309**	**89**
II. Recurrent Costs		
A. Operations and Maintenance	207	0
B. SRO Salaries and Travel Allowances	6,366	8
C. Focal Point Support	1,750	2
Total Recurrent Costs	**8,466**	**12**
Total baseline costs	**76,633**	**100**
Physical Contingencies	3,832	5
Price Contingencies	5,105	7
Total programme costs	**85,569**	**112**

Table 3.2 Summary of New Programme Costs by Theme (in thousands of US$)

Themes (all costs in US$ '000s)		Total	%
Theme 1: Farmer Empowerment and Market Access			
Sub-theme 1.1:	Farmer Empowerment	4,843	6
Sub-theme 1.2:	Promoting Agri-business Linkages and Input Markets	4,801	6
Subtotal		9,644	13
Theme 2: Research and Technology Generation			
Sub-theme 2.1:	Support to Regional Research Priorities	26,721	35
Sub-theme 2.2:	Institutional Capacity Building for NARS	2,240	3
Subtotal		28,961	38
Theme 3: Farmer-led Advisory Services and Innovation Systems			
Sub-theme 3.1:	Advisory Service Reform and Institutional Capacity Building	3,051	4
Sub-theme 3.2:	Promote, Adapt and Scale-out Best-fit Technologies	3,607	5
Subtotal		6,657	9
Theme 4: Education, Training, and Learning Systems			
Sub-theme 4.1:	Building Networks and Partnerships for More Responsive Education and Learning Systems	4,320	6
Sub-theme 4.2:	Sub-regional Education Initiatives	3,110	4
Subtotal		7,430	10
Theme 5: Knowledge, Information Technologies and Communication			
Sub-theme 5.1:	Communication for Innovation and Development	4,417.0	6
Sub-theme 5.2:	Information Management	800.0	1
Subtotal		5,217	7
Theme 6: Institutional Development and Capacity Building			
Sub-theme 6.1:	Developing a Sub Regional Organization	3,510	5
Sub-theme 6.2:	Strengthening SADC FANR	1,205	2
Subtotal		4,715	6
Readiness for implementation of the SRO			
Initial Transitional Support		2,332	3
Support for CARDESA		11,677	15
Subtotal		14,008	18
Total baseline costs		**76,633**	**100**
Physical Contingencies		3,837	5
Price Contingencies		5,105	7
Total programme costs		**85,569**	**112**

3.2 Financing Strategy and Framework Plan

SADC MAPP is a phased long-term regional programme owned and driven by Member States and its diverse stakeholders. It is expected to provide a regional "public good" through promoting and coordinating agricultural R&D, to serve public, private and non-governmental organizations in the SADC region, which predominantly serve smallholders. Accordingly, the financing mechanisms and modalities should help reinforce this programmatic orientation, where it is important to harmonize and align the financing to promote and internalize these basic concepts and approach.

SADC MAPP would apply five principles in its financing strategy and plan, giving close attention to sustainability, as follows:

- Implementability: The scope and size of SADC MAPP, in terms of total costs and range of activities, needs to be implementable so that it can achieve its expected outcomes, including initial evidence of attractive incremental economic benefits, by the end of Phase 1. This will help mobilize the needed funding to launch the first phase, and help reinforce confidence by its funding stakeholders (primarily donors, followed by member state stakeholders) to continue providing increased funding in subsequent phases.

- Harmonisation and Alignment: SADC MAPP has been designed to apply the harmonisation and alignment principles outlined in the Windhoek Declaration, especially by taking a programmatic approach to mobilising and managing donor funding, in direct support of the R&D strategic priorities of the SADC region.

- Grants: SADC MAPP will try to maximize donor assistance in terms of grants, in order to encourage maximum participation by the Member States and diverse regional stakeholders. Concessional loans are likely to be available (e.g. from World Bank), and probably used on a limited basis, which could help mobilize initial modest counterpart financial contributions by some of the participating Member States. These contributions are expected to increase in future phases once tangible incremental benefits are demonstrated in the initial phase.

- Funding Flexibility: SADC MAPP will use various funding modalities and mechanisms, provided the donor assistance is aligned with the SADC MAPP programme, and there are intentions increasingly to harmonize the approach over time. The preferred modality for donor funding will be through a "basket fund", where participating donors will channel their funds to SADC MAPP through a common fund, based on harmonized procedures. Other donor funding modalities which are envisioned include (i) the use of trust funds (which can be managed by one donor that would disburse the funds directly to CARDESA), (ii) earmarking to specific programme themes or activities, and (ii) direct project funding especially with on-going projects whose activities are well integrated into SADC MAPP and aligned with MAPP themes. It is expected that in future phases of SADC MAPP there would be increasing convergence toward the use of a basket fund to be managed by CARDESA. Such convergence will help ensure the use of common financial, procurement, reporting, M&E procedures and activities. This will in turn help reduce transaction costs and enhance aid effectiveness, drawing on good practices of donor assistance.

- Phased Approach: SADC MAPP will phase in various funding modalities, as outlined above, in accordance with the SADC MAPP requirements and institutional and procedural feasibility by the participating donors.

The likely sources of funding for SADC MAPP are based partly on the experiences of ASARECA, CORAF, and FARA, which are also addressing the challenges of mobilizing funding for their regional and regional programs and for securing financial and economic sustainability in providing primarily regional "public goods". The financing options outlined below (see also Table 3.3) are not mutually exclusive; they are complementary and their relative importance will evolve over time, influenced by the program's performance in its early years.

Primary Funding Sources in the Phase 1 of SADC MAPP are expected to include:

- Funding from International Cooperation Partners (ICP), where it is preferable to maximize grants, through various modalities, including programmatic funding, such as through "basket funds", grant trust funds, and harmonised and aligned projects
- Member state contributions, to help secure ownership (including through possible concessional no-interest, long loans, cash and in-kind contributions
- Establishment of a SADC MAPP endowment fund, to which donors would make substantial one-off contributions, which can be used to sustain the funding of future "core" funding of SADC MAPP, including funding of CARDESA.

Primary and other Sources in Phases 2 and 3 of SADC MAPP are expected to include:

- ICP Funding, increasingly using programme-based approach by participating donors, through a "basket-fund" for priority SADC MAPP R&D themes
- SADC Secretariat, through member state payments
- SADC MAPP Endowment Fund initiated in Phase 1
- Direct Member State Contributions in cash and/or in kind
- Member State Contributions through National Institutions or participating institutions, for specific activities
- CGIAR resources, by re-directing part of their funding through the SADC MAPP funding mechanism to make them more demand-driven
- Private Sector Sponsorship and Contributions, to reflect the incremental benefits derived from participating in SADC MAPP
- Membership Subscriptions and Research Levies
- Generation of Own Revenue Sources, while ensuring this will not divert the CARDESA from focusing on its "public good" functions.

An important feature of SADC MAPP would be the progressive simplification and integration of implementation arrangements and donor funding mechanisms, in line with the five principles outlined above. This approach is reinforced by the Windhoek Declaration which is encouraging Governments (including the SADC Secretariat) to take strong leadership and donors to harmonize and align their assistance using programmatic approaches in order to enhance aid effectiveness and sustainability in the SADC region. This approach is also consistent with global commitment as expressed in the Paris Declaration of 2005. The SADC Secretariat would seek a commitment from governments and participating donors to the principle of adopting common implementation procedures based on transparent and efficient public expenditures management: budgeting, financial management and auditing, asset management, procurement, monitoring and reporting. One of the central objectives of the program would be to move away from the traditional "project financing" modality, which results in fragmented and unsustainable assistance, and replace it through various modalities which support programmatic approaches.

Table 3.3: Framework for Assessing Funding Options for CARDESA

Source of Funds	Possible Activities	Potential Benefits	Disadvantages
SADC Secretariat	Mandatory payments by member States to the Secretariat, and donations by other partners of SADC. Necessary to kick-start CARDESA.	SADC has capacity to attract more resources. This gives SADC greater control over its institutions.	Member States may fail to pay, and if there are no donors forthcoming.
Direct Member State Contributions	Direct sponsorship for research areas of interest, training, etc	Some Member States have greater capacity to fund.	Countries with financial capacity may bias CARDESA in their favour.
National Institutions	Direct partnership support by stronger national institutions for thematic areas.	Guarantees the interest of institutions for CARDESA.	Financially strong national institutions may dominate CARDESA.
Corporate Sponsorship	Specific crop and livestock research of commercial interest.	Potential to attract more private sector resources.	Research agenda may be biased towards private sector interests.
Subscriptions, Membership fees and Research Levies	Future scope to be explored.	Promotes innovativeness in CARDESA.	Should not divert CARDESA from core activities.
Generation of Own Resources	Viable cost recoverable activities to be assessed in detail.	Own funding can greatly motivate staff.	Should not be done at the expense of core business of CARDESA.
ICP Core and Program Funding	Many programs, projects and core structures are surviving on donor funding	Donor funding is necessary to kick-start CARDESA.	Big danger is on sustainability and the issue of conditionality and compromise autonomy.
CARDESA Research Fund and Endowment Fund	Need to create own fund early.	Gives CARDESA greater autonomy to run its programs.	No disadvantage

It is envisioned that donor funding would increasingly (especially in Phase 2) be channelled to SADC MAPP (through CARDESA) via a basket-funding mechanism to be established and managed by CARDESA, in accordance with satisfactory fiduciary and associated financial procedures and management capacities. The objectives, operating policies and fiduciary arrangements of the proposed "common fund" are currently under preparation. Such an implementation arrangement and funding mechanism would ensure the program's internal coherence, minimize transaction costs and foster ownership over the programme by governments and stakeholders.

Since SADC MAPP is a 15-year programme over three phases, to the extent possible, efforts would be made to ensure continuity and expansion of donor funding based on programmatic approaches and modalities. The allocation and disbursement of funds would endeavour to follow common approaches, while ensuring sound transparency and accountability of funds. Figure 3.1 shows the proposed framework for the flow and disbursement of funds during Phase 1. The main feature is that the funds are channelled directly to and through CARDESA, using common procedures (for each of the modalities), and then disbursed by CARDESA to the appropriate recipient(s), especially those implementing the grant-funded subprojects, based on the agreed procedures, annual work plan and budget.

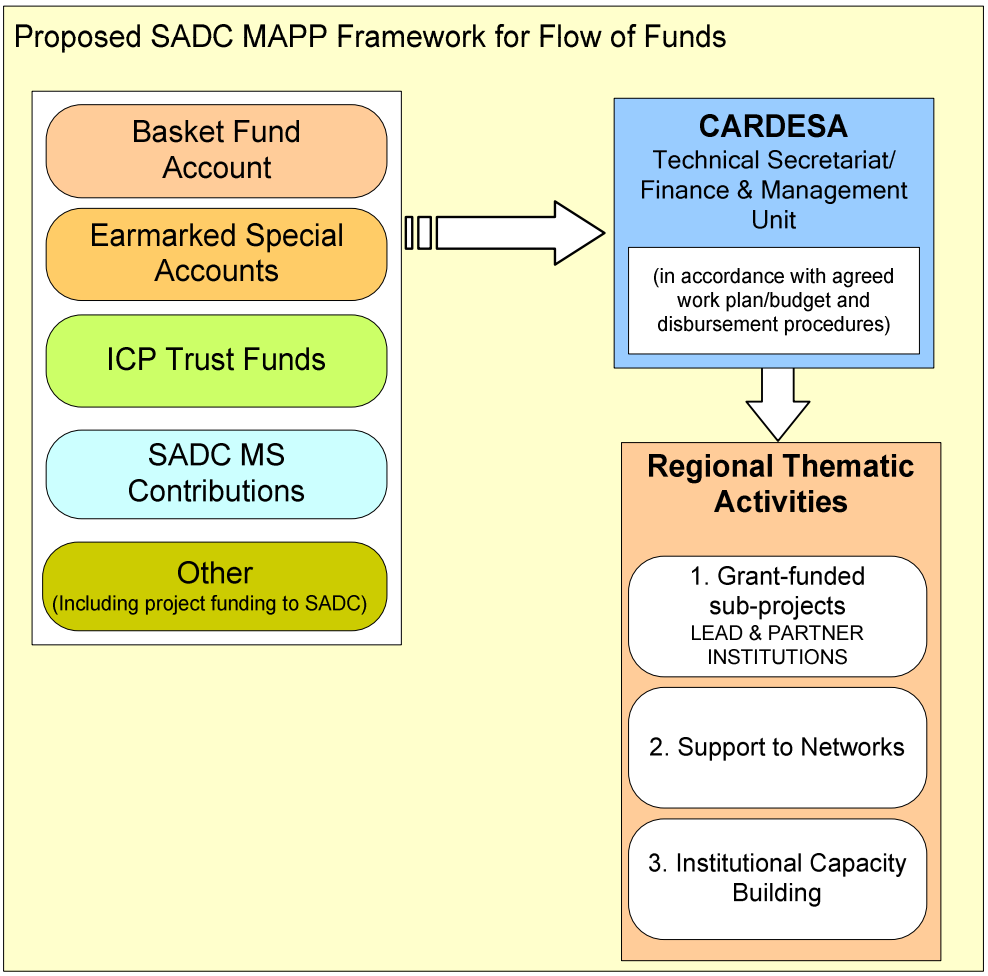


Figure 3.1: Flow of Funds from SADC MAPP

4. PROGRAMME GOVERNANCE, ORGANIZATION, MANAGEMENT AND IMPLEMENTATION

4.1 Structure of CARDESA

In general Sub-regional Organisations have proven effective at providing a responsive institutional structure that allows stakeholders to benefit from the shared stock of knowledge and resources a formal institutional structure can mobilize. Experience within the region with SACCAR, however, has shown the need for careful design and operation of a SRO. Lessons learned from SROs supporting agricultural technology generation and dissemination within the SADC region and elsewhere have shown the importance of:

- Ownership by and responsiveness to key stakeholders including stakeholder within the NARS, farmers and farmer groups, and private sector and civil society.
- Governance and management arrangements that focus on accountability, are responsive to a diverse set of stakeholders and a lean and effective Technical Secretariat to manage day-to-day activities.
- Proactive leadership in promoting partnerships and alliances

- Institutional autonomy and flexibility to ensure operational procedures required to mobilize, manage, and account for funds and programmes, and be accountable to its Board of Directors or Steering Committee as well have right type of incentives to perform.
- A focus on viability and financial sustainability through various strategies, including increased contributions from diverse stakeholders, increased cost sharing on regional research agendas; and establishing endowment funds but with a recognition that most SROs are highly dependent on donor funding, recognizing that they are providing essentially a regional public good, which market forces would not supply.

Ensuring institutional relevance and effectiveness, both as a means to improve impact and to ensure overall sustainability and support from stakeholders, are essential elements of an SRO. It is in this context that the SRO for the SADC region (CARDESA) has been proposed as part of the preparation of SADC MAPP.

In line with the overwhelming consensus of views of stakeholder in the SADC region, CARDESA has been developed as a semi-autonomous SRO. A detailed description of CARDESA is provided in Annex 5. The governance and organisational structure of CARDESA will have the following key complementary elements:

a) A Memorandum of Understanding (MOU) defining the legal and functional status and relationship of CARDESA vis-à-vis the SADC Secretariat;

b) The General Assembly of SADC region stakeholders forming the "base clients" , owners, and promoters of CARDESA;

c) A Board of Directors (BOD) elected from the General Assembly, which provide the main governance oversight and direction to CARDESA;

d) Operational Committees of the Board (e.g., Strategic Planning, Finance, Technical R&D);

e) Technical Secretariat forming the Management and "core" and other technical/support staff and consultants of CARDESA to carry out the day-to-day functions of CARDESA;

f) SADC Region Strategic Stakeholders, including Partners, Centers of Leadership, and Networks, linked through contracts, MOUs and joint agreements, and which are the main implementers of most research and development programs;

g) National Agricultural Research and Extension Committees, which will provide a useful consultation mechanism at the country level, while adding the regional perspective through CARDESA; and

h) An independent operational and financial audit which would be carried out annually, and submitted to the BOD for their review and appropriate actions. The operational audit would help ensure CARDESA Secretariat and its operational committees comply with the agreed policies and procedures, including SADC MAPP's operational manual and the subproject processing and fund allocation criteria and procedures.

Figure 4.1 shows the proposed organizational chart of CARDESA, and Figure 4.2 shows the place of SADC MAPP in the SRO.

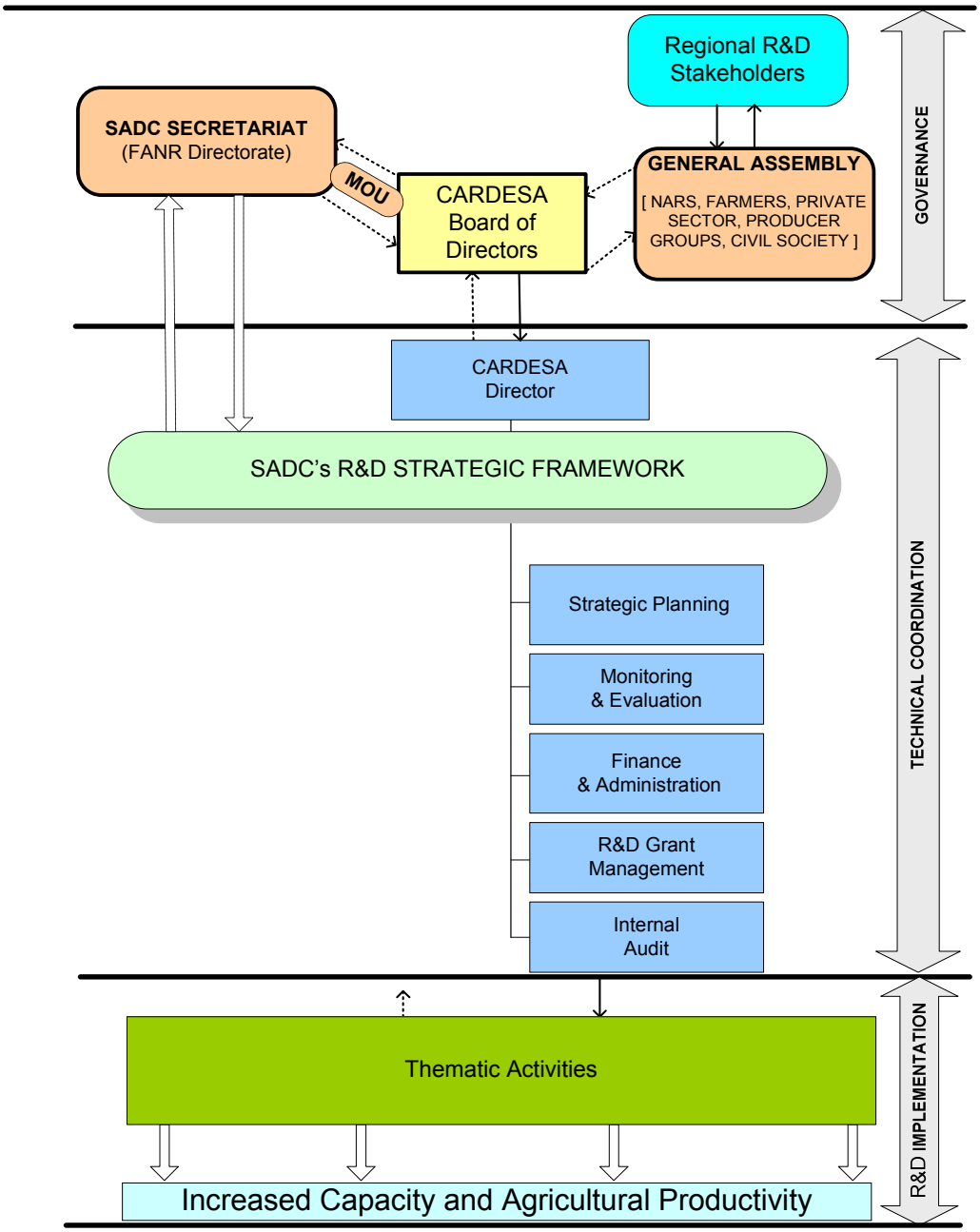


Figure 4.1 Envisaged structure of CARDESA

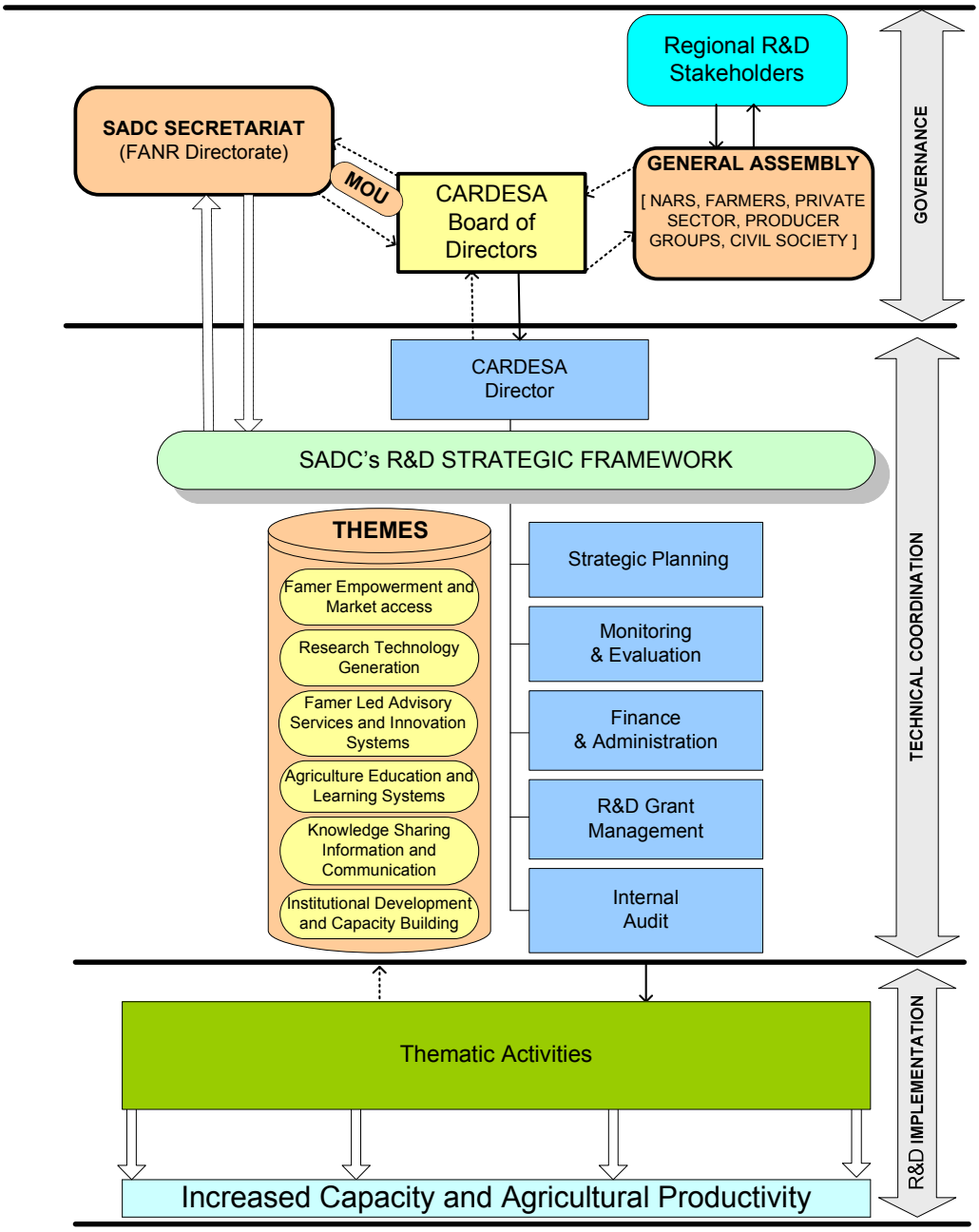


Figure 4.2. The CARDESA structure showing SADC MAPP themes in PY 1-5

4.1 SADC MAPP Implementation Arrangements

4.1.1 Implementation Principles

Implementation of SADC MAPP would be guided by the following principles:

- Flexible, stakeholder driven implementation process: While the framework of SADC MAPP has been broadly outlined, regional priorities and specific SADC MAPP supported activities would be determined through a stakeholder driven process whereby consensus and decision making authority would rest with SADC MAPP's stakeholder constituency. Annual meetings would be the primary decision making forum for the SADC MAPP activities and would allow for frequent adjustments to reflect implementation experiences and emerging priorities within the region.

- Effective partnerships and a Centre of Leadership approach: Coordination and collaboration on specific regional activities would utilize the centre of leadership model, with a focus on collaboration and capacity building. The centre of leadership approach, which has been pioneered in the region through RUFORUM[19], focuses on identifying networks in which various institutions develop partnership arrangements and designate lead institutions – usually those with the greatest capacity – to take on a greater role in implementation and coordination. Together, the lead and partner institutions establish a collaborative arrangement that draws on the strength and capacity of the lead institution but also identifies clear mechanisms for partner institutions to participate – both as a means to provide needed inputs and as a means of building their capacity. This approach is more dynamic and partnership oriented than the traditional centre of excellence model, which is often viewed as creating institutions with a poor track record of collaboration. The centre of leadership approach seeks to strike a balance between the need to concentrate resources within fewer institutions to take advantage of economies of scale and comparative advantage with the need to build capacity within a larger number of institutions in the region.

- Focus on achieving regional benefits: Subsidiarity is a guiding principle of the programme and SADC MAPP activities would have to demonstrate the clear regional benefits. The programme would not be a mechanism to distribute funds through the region as a means of "topping-up" for national initiatives, rather implementation would focus on identifying and implementing specific activities that have a well defined regional benefit. As a result, activities and resources would not be distributed equally to all participating institutions, but would be allocated according to the requirements of the task. This could include, for example, the provision of funds to a lead institution for a regional training event, or to multiple institutions for a specific coordinated research activity. It is expected that all interested regional institutions would be able to actively participate in SADC MAPP and the level of participation

[19] RUFORUM promotes and facilitate networks of specialisation rather than centres of excellence. Within such networks, centres of leadership (possibly the initiators of 'research stables') are designated to enhance capacity and quality throughout the network. A Network of Specialisation among RUFORUM members may be viewed as having leaders, facilitators and needy members. Leaders are the universities that have greatest expertise and most up to date facilities in a certain area of instruction or research. Facilitators are universities with specialized, but incomplete capacities within that area. Needy members are those who acknowledge their weakness in that area and seek to collaborate within the network in order to broaden their services and capacities. By pooling their efforts through networking, RUFORUM members have greater abilities to achieve their strategic goals in terms of training and impact-oriented research.

would vary according to interest and capacity. It is likely that some countries may take a more active role in some areas and have lower level of participation in others.

- Results orientation. A strong results orientation would guide the selection and implementation of SADC MAPP activities. Monitoring and evaluation of SADC MAPP activities would play a key role in decision making.

4.1.2 Implementation Mechanisms

Annual Meeting and Work Programme Development. An annual meeting of regional stakeholders would be the primary decision making mechanism for SADC MAPP activities The meeting would be an annual regional forum involving a wide range of stakeholders from each SADC country as well as other regional, regional or international organizations. As part of the annual meeting, stakeholders would:

- Identify and reach consensus on regional priorities;
- Provide guidance on specific thematic activities to undertake as part of SADC MAPP; and
- Assess progress on implementation of on-going SADC MAPP thematic activities

Detailed development of the annual work plan and approval of an annual budget would be approved by the Board of Directors of CARDESA. Key inputs into the meeting would include assessments of emerging regional priorities, institutional capacity assessments and the monitoring and feedback from the on-going implementation of SADC MAPP activities.

Management and coordination. SADC MAPP would be implemented through CARDESA, with day to day implementation managed by a small team in the Technical Secretariat of the CARDESA. If the formal establishment of the CARDESA has not taken place by launching of programme, the SADC MAPP coordination unit could take the functions of the CARDESA to ensure that the Programme activities are implemented. The SADC FANR Directorate would provide oversight.

4.3 Grant Funding Approaches and Implementation Procedures

Financing for SADC MAPP supported activities would flow through two main channels:

(i) Agricultural productivity and capacity building grants which would finance thematic activities and form the bulk of the SADC MAPP expenditures; and,
(ii) Core funding for the SRO to enable it to fulfil its institutional role as a coordinating body for enhancing regional agricultural productivity.

SADC MAPP as a long-term regional program has been designed to operate an agricultural R&D grant system to provide mechanisms through which participating institutions in Member States would be facilitated to work together and pool resources to undertake joint action on agricultural R&D issues of common interest, consistent with the identified regional priorities. The primary aim of grant system support would be to make regional research, technology generation, transfer and adoption and related training and capacity building more stakeholder-driven, cost-effective, pluralistic and efficient. An overriding principle of the grant system would be that “funds follow performance in addressing the regional R&D priorities”, i.e. institutions that demonstrate impact on the ground have a claim on incremental support.

4.3.1 Objectives of the Grant System

The proposed SADC MAPP grant system especially aims at: (i) re-focusing agricultural R&D efforts on emerging high priority areas by mobilizing the joint capacity of the regional NARS institutions through collaborative action; (ii) establishing a single regional grant system with harmonized procedures that is supported through different "Funding Streams" (FSs) by multiple donors; and, (iii) building regional NARS capacity through training and technical back-stopping for generating and implementing high quality R&D proposals and for spearheading regional collaborative programs, including with the private sector. Each regional Call for sub-project proposals ("Call") or Invitation for Expressions of Interest ("IEI") would include a requirement for the Consortia "Lead Institutions" (CLIs) to assume a "Centre of Leadership" role in which they would facilitate institutions less capacity to participate in sub-projects.

4.3.2 Grant System Approach

Under SADC MAPP, grant funding of sub-projects would be allocated through transparent, fair and balanced competition on the basis of quality, efficiency and other specific criteria, with due regard for the need to build the capacity of regional NARS institutions. All grant-financed sub-projects would undergo the same independent evaluation and approval process and would be subject to similar sub-project implementation back-stopping and supervision arrangements, including rigorous M&E procedures. The NARS institutions of the SADC region are envisaged to be the main competitors for, and beneficiaries of the grant funding under SADC MAPP.

All SADC MAPP-funded grants would include an element of "cost-sharing" by the participating institutions[20]. The major use of SADC MAPP grant funds is expected to be for the financing of operational costs (excluding regular staff salaries but including specific project-related consultant and labour requirements), travel, training and short-term technical assistance. In addition, limited provision would be made for the financing of essential equipment, transport and institutional/organizational "overheads", including M&E for each grant-funded sub-project. Civil works would normally not be provided for. Through explicit "rules of the game", the design of the grant system would ensure that NARS entities located in the SADC Member States would be the primary beneficiaries of the financial resources and capacity-building support provided through SADC MAPP.

The grant system would finance a regional portfolio of sub-projects through grants to groups of NARS institutions involving in appropriate cases also other agricultural Centres. The focus of the different categories of grant-funded sub-projects would be drawn from the regional R&D priorities which initially will be based on the results of a series of national and regional stakeholder consultation workshops. Grant-funded sub-projects would focus on emerging themes which are crucial to increasing productivity, profitability, sustainability and poverty eradication, and that are closely linked to the SADC regional policies, strategies and opportunities.

4.3.3 Different Funding Streams

Ultimately, SADC MAPP is envisaged to support the operation of a single harmonized system for grant support to agricultural R&D financed by several donors but administered through one uniform system following transparent and common procedures through the entire "sub-project cycle" (Fig. 4.3). It is however, recognized that some donors who are agreeable to contribute funds to the grant system may for the time being wish to specify the type of joint

[20] Cost-sharing by collaborating institutions and individuals could be either in "kind" (e.g. staff inputs, use of buildings, facilities or land), or in cash.

activities ("earmark") that will draw on their funding support. Initially four Funding Streams are suggested for the SADC MAPP-financed grant system:

- Funding Stream A would support the entire SADC agenda of agricultural R&D and related work including existing networks and programs without restrictions;
- Funding Stream B would assist specific existing or newly established networks, projects and programs (NPPs) or Consortia involved with R&D activities that relate to the regional priorities;
- Funding Stream C would exclusively support thematic areas not directly concerned with technology generation and adaptation (e.g. farmer empowerment, market access, advisory services, agricultural education and training; and ICT; and,
- Funding Stream D would provide unspecified support to sub-projects implemented primarily by non-SADC NARS institutions in support of the SADC priorities in agricultural R&D and related areas.

4.3.4 Grant System Governance and Management

It is of crucial importance that the criteria and processes of sub-project selection, evaluation and approval for grant funding are considered by all stakeholders as being fully transparent and objective. An autonomous "Sub-project Approval Committee" (SAC) comprising no more than eight members of exemplary standing in agricultural R&D in SADC would therefore be appointed and charged with governance, policy guidance and strategic oversight of the grant system. SAC would be responsible for the approval of sub-project proposals for grant funding based on criteria approved by the SRO Board of Directors. SAC membership would be high profile, pluralistic and adequately covering the three official languages of the region. SAC members would be selected on the basis of their technical competence, regional stature and trust, experience and skills in order to enhance grant system transparency and independence. In order to ensure close linkage between the SRO and the grant system, two of the members of the proposed SRO Board of Directors would be expected to also serve on SAC.

A "Technical Support Group" (TSG) would be appointed to review, evaluate and grade scientifically, financially and economically the sub-project proposals submitted in response to Calls and IEIs, and assist with monitoring of the implementation progress and performance of launched sub-projects. TSG would consist of about 12 high profile members drawn from the region with a wide mix of disciplinary skills and institutional backgrounds, and would comprise individuals who meet the criteria for recognized scientific excellence. The TSG would involve a constituency of SADC regional professionals who are contacted part-time as "consultants" to the SADC SRO but engaged over the medium to long term, to support the work of the "Grant Management Unit" (GMU). TSG members would in time be expected to become champions in the region of the competitive funding process for agricultural R&D.

A core team of staff constituting the GMU would be appointed to take responsibility for grant system management, including overall planning, budgeting and financial management, organizing and processing the Calls and IEIs (the identification of service providers requested to respond to IEIs or to implement sole-source contracts would be a SAC task). The GMU would also be responsible for supervising implementation of all SAC-approved grant-financed sub-projects, including for organizing sub-project "Mid-term Reviews" and for overseeing orderly sub-project completion. The GMU would have access to staff with expertise in crops, livestock and natural resources management and economics, either internally or by drawing on the capacity of the proposed SRO Technical Secretariat which is expected to include expertise in agricultural R&D, agricultural education, ICT, M&E and management information systems as well as financial management or on FANR disciplinary staff.

4.3.5 The Call/IEI, Proposal Preparation, Evaluation and Launching Process

Figure 4.3 illustrates the general features of the proposed process of a Call for sub-project proposals (or IEI), the preparation of Concept Notes (CNs) and Full Proposals (FPs), Sub-project screening, evaluation, approval and launch/implementation.

Initially, based regional R&D priorities drawn from the country consultations and the available grant system funds, a Call for proposals for sub-projects to be financed under the MAPP grant system would be widely distributed (or an IEI issued to a limited number of TSG-selected certified providers). After submission of the Concept Notes for the preparation, of which there would be a limited re-imbursement of costs, there would normally be three stages:

- First, all Concept Notes would be screened by the GMU on their "responsiveness" to the particular Call or Invitation. Non-responsive proposals would be eliminated from further competition[21];
- Second, those Concept Notes that qualify in principle for grant system funding would then be scientifically and economically evaluated and graded by the TSG[22]. The SAC, on the recommendation of the TSG, would select the two collaborating teams with the highest rated proposal to be invited to prepare a full proposal (some costs of preparing the full proposal would be advanced by the GMU); and
- Third, after submission, the full proposal would be evaluated again by the TSG and the best-rated would be approved for grant system funding.

The launch of an approved sub-project and the initial disbursement of funds for implementation would take place immediately after signature of the contracts for implementation (based on the winning full proposal) and for all large sub-projects, Within 4 months of appointment of Strategic Planning /M&E Coordinator confirmation of the formal establishment of the "Consortium Steering Committee" (CSC) by the Consortia Lead Institution (CLI) which would be a condition of disbursement[23]. The sub-project implementation contract would be signed by the GMU and the Consortium Lead and Partner Institutions.

[21] The main question at this stage would be if the CN has taken proper account of the instructions in the Call or Invitations, e.g. concerning the prescribed format of the CN, sub-project duration, budget ceilings, etc.
[22] In case of different Consortia trying to address similar R&D issues, GMU would sometimes pro-actively facilitate the interaction between Consortia needed to generate a joint sub-project proposal.
[23] Once formally approved by SAC, the Team Leader (TL) and the Head of the Consortium Lead Institution (CLI) would be immediately informed by GMU. At the same time, except for small sub-projects and studies, the TL and the CLI would be requested by GMU to formalize the CSC which would be comprised of sub-project stakeholders and implementers and be responsible for sub-project implementation oversight (and which likely will have functioned in an ad-hoc fashion during sub-project preparation).

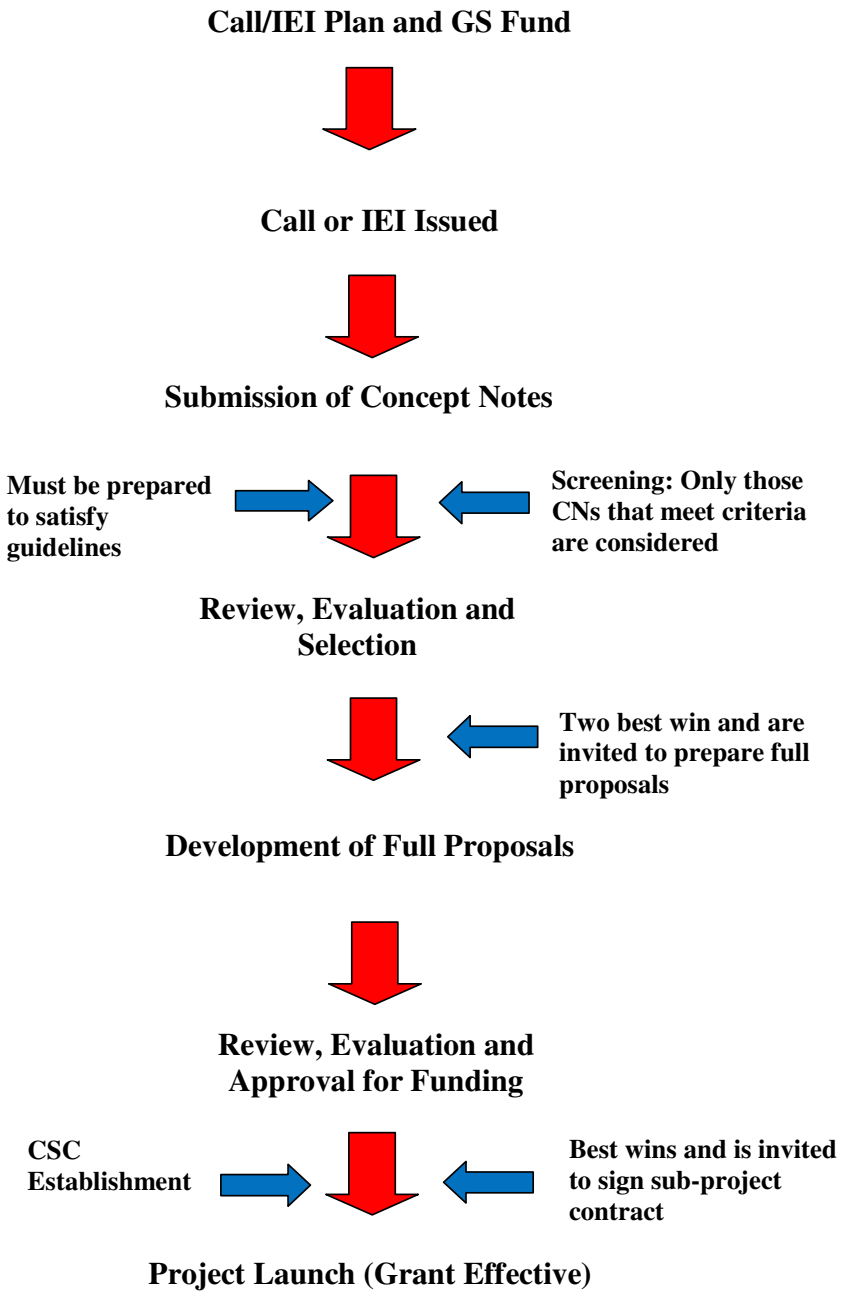


Fig. 4.3: The Call/IEI, Screening, Evaluation, Selection and Launch Process

4.3.6 Training, Capacity Building and the Need for Advance Preparation

The SADC MAPP grant Operational Manual is currently being drafted and will outline a detailed system for making grant awards based on an initial solicitation for sub-project proposals and the application of eligibility criteria. Worldwide experience with grant systems shows that training and capacity building of both the staff of grant system operational bodies and of potential applicants are of crucial importance to successful implementation, and that this takes time and concerted effort. It would therefore be highly desirable if, as part of SADC MAPP detailed preparation, well before programme effectiveness, financing could be aligned for an intensive SADC-wide training program on grant system procedures and sub-project proposal writing.

4.4 Financial Management and Fiduciary Arrangements

Financial management arrangements including detailed procedures for financial reporting, procurement and accounting systems, expected flow of funds, and financial and operational audits will be developed once the structure and institutional arrangements of CARDESA have been agreed upon. A detailed study by independent financial management experts will be commissioned and will provide the structure and procedures for SADC MAPP and the proposed SRO.

4.5 Sustainability Strategy

SADC MAPP has developed a strategy to achieve sustainability over the three 5-year phases and beyond. First, the design of SADC MAPP focuses on being demand-driven by a wide range of SADC stakeholders. To the extent the first phase is responsive to the regional R&D priorities, there will be an on-going and growing demand for its services. Second, there will be clear mechanisms for disseminating and sharing technologies which show tangible results across SADC member countries, which will further solidify its sustainability. Third, it is expected that SADC MAPP will generate substantial incremental financial and economic benefits, similar to other R & D investments programs in the developing world (see section 6.1 for further details). Institutional sustainability is expected to be achieved through helping CARDESA to establish itself as an effective service delivery and farmer empowerment institution. Perhaps the most important sustainability factor will be the stakeholder groups in the region who participate in the design and implementation of SADC MAPP grant-funded sub-projects. Experience shows that active participation of stakeholders is likely to help promote the SADC MAPP agenda and approaches, further reinforcing sustainability.

Section 3.2 highlights a financing strategy which would help ensure a credible plan to launch and sustain the operations of SADC MAPP, together with a brief assessment of the pros and cons of each option. Given the public good nature of SADC MAPP's functions, it should be recognized from the outset that the financial sustainability initially will rely primarily on sustained contributions from international donors, and progressively from the member states, followed by stakeholder groups who believe CARDESA is generating tangible incremental financial benefits.

While it is envisioned that SADC MAPP will diversify its funding sources over time, the best assurance to its sustainability is to rely on its good performance and responsiveness to its key stakeholders, especially in generating the expected incremental economic returns, which is the main criterion used by donors to continue their funding. This means that an effective SADC MAPP will help ensure increased agricultural productivity and associated incremental economic returns of a magnitude which will help the SADC region to essentially repay the costs of financing SADC MAPP, if they were to be charged all of the costs. There are major "core" donors who have expressed their intentions to support SADC MAPP for the next 15 years (most on a grant basis), and the donor agency representatives generally consider that a semi-autonomous SRO such as CARDESA is a necessary institutional instrument to justify their agency support.

This approach and rationale of sustainable operations and funding for agricultural R&D is consistent with international experience, as evidenced by ASARECA, CORAF, and the international research system.

5. MONITORING AND EVALUATION

5.1 Monitoring and Evaluation Framework

The establishment and adoption of a comprehensive M&E framework for SADC MAPP and a strong M&E system for all its sub-projects is key to achieving its strategic objective for the first 5-year phase. The implementation of SADC MAPP will occur at various levels: regional, national and other levels below. The M&E Framework should meet the needs of these diverse groups of stakeholders. Thus, the objective of the M&E system is to ensure that the objectives of both the SRO and SADC MAPP are being achieved by providing information for decision making with regard to the progress being made towards the achievement of the programme's results and outcomes in relation to programmes development objective.

Monitoring and evaluation will provide for the assessment of programmes results through use of clearly defined indicators for the for outcomes and outputs. Outcome and output indicators have been selected to provide insights on the relevance, efficiency and effectiveness of the SADC MAPP programme. They will also be useful in identifying weaknesses, providing solutions on the way forward and lessons learned for replication of best practices. While part of the M&E activities will be mainstreamed into the programmes implementation structures the M&E system will provide for the evaluation of the programme through identified evaluation reviews; special studies and impact assessment studies. The M&E system will help key management and stakeholder groups to assess performance at all levels of programming with regard to progress towards results ; the contribution of SADC MAPP to the results; and the progress towards the effective participation and partnership with relevant stakeholders, all of which are critical to the implementation of the programme.

The M&E system has a strong results orientation with a greater focus on the results than on implementation processes and achievement of physical outputs. Emerging best practice on M&E has shown greater benefits in programmes with a results focused M&E Framework and System, and the M&E systems designed for SADC MAPP which will essentially facilitate SADC MAPP

to operate a results based management system. To support the strategic focus towards results, the M&E system will be geared to provide a strong and coherent system of learning and performance measurement. Implementing stakeholders will be expected to participate in monitoring progress towards achievement of results systematically; to report on the results at the various levels and to integrate lessons learned into management decisions and future planning and programming initiatives at those levels. This will require the linking of tools for programming /planning; monitoring and evaluation; and reporting tools in a coherent and result oriented system in order to avoid duplication and, at the same time, create a common information base. A results oriented approach to M&E will also require the streamlining of M&E activities into the SADC MAPP's implementation systems across the board including all implementing stakeholders as well as inculcating in all implementing personnel the value and culture of managing for results.

The M&E framework has been designed to reflect following key principles:

- The M&E system is a central part of the Programme Cycle Management for SADC MAPP, a process which captures the overall concept of effective management of programmes and encompasses various sub processes. It should therefore not be seen as a stand alone system but should be viewed as an integral part of overall programme management. The other phases of the SADC MAPP's programme cycle are planning, implementation, feedback and re-planning;
- The M&E framework and system are part and parcel of the decision support system for SADC MAPP, complementary to the planning system and the management information system, which are the other two elements of a decision support system. The overall thrust for the M&E Framework and system is to make it an effective management tool as opposed to a supervisory and policing system;
- The M&E processes at different levels need to be linked through a hierarchy of objectives of the next higher level;
- The M&E at all levels needs to use a mixture of the conventional M&E based on planning and determined indicators (involving stakeholders) as well as participatory approaches and methods; and
- The value of and need to use M&E plan which is subject to monitoring and evaluation
- Recognizing the key roles to be played by partnerships and assessing the performance of the partnerships strategies in achieving results

The details of the M&E Framework are presented in Annex 9.

5.2 Monitoring Arrangements

Monitoring for SADC MAPP is based on the Results Framework which clearly defines the expected results to be achieved both at the programme development objective and the level of intermediate outcomes for each of the six themes of the programme for the first phase of the programme. The results framework has identified the key programme outcome indicators at the two levels: the development objective and the intermediate outcome level. The indicators will however require verification with key stakeholders as part of the readiness for implementation of

programme activities. Monitoring activities will therefore focus on capturing, processing and analysing information on these key outcome indicators and, consequently, disseminating the information to implementers and stakeholders on progress towards achievement of the outcomes. The information will be used to guide the development of improvements to the programme with learning, communication, lessons learned and use of information being the key concerns to be fulfilled. Of key importance is the reporting and accountability function of monitoring to the relevant stakeholders.

The Strategic Planning and M&E Unit within the SRO will be responsible for the overall monitoring of the programme's intermediate outcomes through the formal key outcome indicator system based on the results framework. The programme management will also encourage less formal participatory monitoring systems to be used by stakeholders implementing programme subprojects as part of participatory planning implementation and monitoring with key stakeholders of the sub-projects. As the indicators and methods for these less formal monitoring systems are likely to vary from place to place and over time, the systems would therefore be distinguishable from but overlap and link with the more formal predetermined results based system. The two systems would be complementary.

Decentralized monitoring will be carried out by those stakeholders most directly concerned. This applies to the more formal results framework based monitoring as well as the more participatory planning, implementation and monitoring referred to above .This reflects the idea of monitoring being integrated in the activities of planning and implementation and wherever appropriate a participatory approach is followed and use of information where captured is emphasized. The decentralized arrangement for monitoring implies that both CARDESA and relevant stakeholder's institutions that will be implementing MAPP subprojects will be responsible for monitoring results, making use of the information and sharing and reporting on the information. This will ensure that monitoring is not necessarily the sole responsibility of a specialist unit running in parallel to implementation, but is mainstreamed within implementation and reporting processes of the respective institutions. Each MAPP subproject will therefore be required to prepare their results framework and the monitoring arrangements for capturing data on the results indicators and monitoring plan. These results frameworks for sub-projects will cascade upwards to the overall SADC MAPP results framework connecting the overall results.

Monitoring the key indicators at each level will involve the following tasks:

- Setting the baseline values for the outcome indicators
- Setting the target values for each of the five years of MAPP's phase one
- Setting the frequency for data and information capture on the outcome indicators during the five years and the frequency of the reports to be prepared
- Determining the data collection instruments through both programme in-house systems and through contracted systems
- Determining the responsibility for data and information collection
- Determining the responsibility for data and information processing, analysis, dissemination and feedback mechanisms

5.3 Evaluation Arrangements

It will be necessary to include both reviews and evaluation for the SADC MAPP programme. Evaluation is considered here as the assessment of the achievement of the programme objectives and the broader positive and negative impacts and overall value of the programme. Evaluation will make use of the baseline study and purposely designed studies to assess in an intensive manner the previous and prevailing situations at specific points in time. Reviews (which are a form of evaluation) will be using the available information to assess progress towards the achievement of the programme's objectives and will be carried out more frequently than evaluation and they may be less intensive. Reviews will be carried out by sub-projects and the overall programme as part of the annual planning process where progress towards achievement of objectives will be assessed and the need for changes in direction to be encouraged during annual planning. The overall programme management and the key stakeholders will be involved in the reviews.

Existing studies and surveys that can provide relevant data and information for programme evaluation will be identified. Specific studies, assessments and surveys will be executed by MAPP for purposes of evaluation. Among these is the baseline study; mid term evaluation and the end of phase evaluation. Others will include client satisfaction survey and beneficiary impact assessment.

While annual reviews and planning will be done-in house, other studies, assessments and surveys are likely to be out-sourced. Details of the programme review and evaluation are also given in Annex 9.

6. ASSESSMENT OF BENEFITS, SAFEGUARDS AND RISKS

6.1 Economic and financial assessment of benefits

The proposed SADC MAPP is expected to generate substantial and sustainable incremental financial and economic benefits, although in the first phase most of the activities will involve laying a strong market and stakeholder-driven and institutional foundation for subsequent expanded R&D investments. Together with future phases, these will generate more visible and expanded quantifiable financial and economic benefits in terms of incremental productivity and diversified value-added production by a larger number and range of participating farmers. The first phase will place attention to developing SADC regional R&D priorities in its major commodity subsectors, and where increased productivity in these priorities and their periodic updating, especially in phases two and three, will contribute increasingly to country and regional agricultural and economic growth, and especially in producers' incremental benefits, thereby contributing to poverty reduction.

International standard practice for the economic assessment of agricultural research and extension investments, especially of a regional nature, recommends the use of representative ex-post, rather than ex-ante quantification of incremental costs and benefits of R&D investments. Forecasting and quantifying ex-ante economic costs and benefits for these types of programme are not reliable or advisable because it is not feasible to anticipate reliable results and outcomes

of these activities. The required data for ex-ante analysis, especially for the joint-country agricultural R&D initiatives is either unavailable or unreliable. For example, there are great difficulties in estimating farmer adoption rates of technologies not yet available, and in linking cause (costs) and effects (outcomes) of research and extension interventions, especially when involving more than two countries. Establishing this attribution is especially difficult when involving more than two countries, where their incremental benefits are generated largely through spillovers and economies of scale. For these reasons, indicators or point estimates related to adoption rates may prove unreliable, not to mention estimating the magnitude and sustainability of the incremental benefits.

Accordingly, the economic justification of the proposed SADC MAPP is underpinned largely on the reliable empirical results of extensive ex-post analysis in the developing world, with special attention on Africa. There are several recent studies and publications which provide an excellent synthesis of these empirical results, and which are pertinent for supporting the economic justification of the proposed SADC MAPP. Annex 8 provides further documentation of these empirical studies. One of the key messages in the World Development Report 2008 ("Agriculture for Development", Chapters 2 and 7) is that agricultural productivity improvements and growth have been closely linked to investments in agricultural R&D (although with lower levels/rates in sub-Saharan Africa).

Ex-post analysis of agricultural research and extension in most countries, including a large number of countries in Africa and the SADC region, reveals relatively high financial and economic returns to these investments, ranging between 30 – 75 percent. An IFPRI comprehensive review of 292 benefit-cost studies, reported on nearly 700 estimates of rates of return on R&D and extension investments in the developing world, with an average of about 43 percent. It showed returns to research investments alone of 80 percent, extension alone averaging nearly 80 percent, and research and extension combined averaging 43 percent. Annex 8 also documents some of the specific impact studies for R&D and specific commodities in sub-Saharan Africa, also showing positive results.

The SADC MAPP proposes to take a more comprehensive approach in terms of supporting regional (at least 2 countries) R&D investments, together with further supporting actions, such as enhancing input and output market access, farmer organizations, and institutional innovations. These latter activities will help ensure the potential benefits actually materialize. The nature of these regional-induced incremental economic benefits are well known to be generated by "spill-overs" and "economies of scale". The WDR 2008 states that the international agricultural research centers of the CGIAR were created specifically to provide spillovers (technologies generated in one country and shared with other countries) in many areas of technology. It is estimated that over 50 percent of all benefits of R&D are generated by such spillovers. Accordingly, through inference, these ex-post results provide strong analytical support that SADC MAPP will be able to generate incremental economic returns which are comparable, if not better, to these attractive ex-post results.

To the extent there is good participation by the SADC countries, this will enhance further the "economies of scale" source of incremental economic benefits arising from the regional R&D activities supported by the SADC MAPP. Market-driven R&D investments, coupled with the

types of regional institutional innovations and public-private partnerships to be promoted by the SADC MAPP will be even more important in the future (including in the SADC Region), given rapidly changing markets, growing resource scarcity and greater uncertainty (including changing weather patterns). These trends help to better define the "without" and "with" scenarios of SADC MAPP.

While the above section (and Annex 8) has highlighted the results of available empirical ex-post studies, the design and implementation arrangements of SADC MAPP are aimed at realizing the potential benefits. Some of the specific measures include: (a) provisions for the SADC MAPP grant funding subproject criteria to require (and provide training in) simplified ex-ante economic justification in the subproject proposals, which will help ensure rigor in the proposals and their evaluation and approval; and (b) a monitoring and evaluation system which will give close attention to tracking the key milestones in benefit generation of subprojects, providing implementation assistance, and in making reliable ex-post estimates of the subproject's benefits/impacts following their implementation. These actions also will facilitate the process of ensuring a better basis for and more reliable ex-ante estimates for subsequent stages of SADC MAPP. Effective implementation of these measures through the programme's institutional innovations, supported by appropriate capacity building efforts, will help ensure a sustainable SADC MAPP, from one phase to the next.

6.2 Social Assessment

SADC MAPP is expected to generate favourable social benefits to participating farmers, especially smallholders, in terms of ensuring focus on smallholders, ensuring equitable distribution of benefits, transparent participatory processes which would lead to genuine empowerment of smallholders. Smallholders, especially women, dominate agriculture in the SADC region, in both local food production and production for regional and other international markets. SADC MAPP will give close attention to the social assessment criteria in the setting of SADC R&D priorities and grant-funded subproject proposals to ensure the specific circumstances of small-scale farmers are adequately considered. For example, it will require that the subproject proposals identify the farmer population which benefit directly and indirectly. Preference will be given to adaptive research which will be conducted on farmer fields. The grant funded scheme will encourage smaller and less established farmer organizations to submit proposals, while ensuring they give adequate consideration to the social effects of their activities. Finally, the SADC M&E system will include key performance indicators which measure the nature and extent of social benefits.

6.3 Environmental

The proposed SADC MAPP expects to contribute to the use of environmentally safe agricultural technologies. The programme will contribute environmentally friendly and sensitive agricultural practices, working through a wide range of regional stakeholder networks and organizations which will be implementing the subprojects, and influencing the standards in each of the participating SADC countries. The subproject criteria will require key information on environmental practices, such that SADC MAPP will not approve and fund subprojects which are deemed to have adverse environmental and social impact at the regional and national levels. It will encourage proposals which involve Integrated Pest Management (IPM) and soil

conservation, which promote cost-effectiveness and sustainable use of chemicals in farming. Accordingly, the grant administration unit will ensure compliance through careful screening of all subproject proposals before their final approval and release of subproject funds. SADC MAPP will also promote the homologation and harmonization of the use of pesticides in the SADC region.

6.4 Risks

Phase 1 of SADC MAPP has variable and overall moderate risks. In summary, they are outlined in Table 6.1 below.

Table 6.1 : Summary Risks and Risk Mitigation Measures

Main Risks	Risk Mitigation Measures	Risk Rating with Mitigation
A) With respect to the Programme Development. Objective		
1. Weak ownership and participation of SADC Region stakeholders, and initial buy-in breakdown	Ensure effective and responsive participatory approach throughout design, approval and implementation processes by key stakeholder groups, including effective SADC MAPP "focal" persons in participating countries	M
2. Delayed establishment & weak functioning of CARDESA, and cooperation with key stakeholders breaks down	a) Ensure effective design of and buy-in to CARDESA from key stakeholders and championing by SADC FANR, to address rationale and sustainability concerns, and to secure timely approval to establish CARDESA from SADC b) Ensure and monitor effective governance arrangements (including representative Board of Directors (BOD)) and mechanisms in design and implementation phases of CARDESA c) Ensure transparent and competitive recruitment process to attract and retain suitably competent "core" CARDESA staff, especially the Director.	M
3. Deficient up-front and on-going agreement on complementary relationship and roles of SADC FANR and CARDESA	Ensure appropriate design and effective implementation of activities for clear and mutually supportive complementary relationship and roles of FANR and CARDESA, and for securing enhanced capacity of SADC FANR in its policy and strategy roles, supported by a solid MOU, close monitoring, and transparent communication.	M
4. Delay in developing and implementing strong pipeline of diverse stakeholder-driven subprojects which respond to SADC R&D strategic priorities	a) Ensure sound design of grant funded subprojects builds on relevant experiences and lessons from CORAF, ASARECA, and SACCAR, and reflects sound SADC R&D priorities (to be updated periodically in participatory manner) b) Carryout sound and stakeholder responsive processes for grant-funded subprojects, with adequate capacity building, support systems and monitoring to ensure quality submission & implementation of stakeholder-driven subprojects	M
B) With respect to implementation and securing intermediate outcomes of SADC MAPP Strategic Themes		
1. Inadequate and delayed core	Early and active involvement of likely donor funding	

Main Risks	Risk Mitigation Measures	Risk Rating with Mitigation
funding for ensuring visible presence and value-added of SADC MAPP to SADC region	stakeholders in design and consultation phase, and finding the right balance in funding modalities to achieve the required harmonization and alignment of donor support	M
2. Rigorous standards and review mechanisms of grant-funded subprojects are not applied adequately and consistently	Ensure sound design and consistent application of operational criteria and review mechanisms of grant-funded subprojects.	M
3. Approved and implemented grant-funded subprojects are not responsive to stakeholder and SADC region priorities, and hence have limited scope in scaling up and out.	Ensure establishment of sound and strategic R&D priorities for SADC region and participating stakeholders, and mechanisms for scaling up and out promising technologies through expanded farmer adoption rates, supported by close monitoring	M
4. Use of funds is inefficient or inappropriate, and specific internal control mechanisms are deficient, and not identified and rectified in timely and sound manner.	a) Sound Programme Implementation Manual will be prepared and socialized with key stakeholders b) Internal auditor for CARDESA will be recruited with adequate experience and profile to ensure compliance with SADC MAPP's operational and financial procedures by participating stakeholders which implement the grant-funded subprojects	M
5. There is a delay in identifying implementation constraints and the incremental benefits not materializing	SADC MAPP design and detailed design stages have devoted early attention to formulating a sound M&E system. CARDESA will also include specialized staff for implementing this system, while also building up the capacities of participating stakeholder organizations.	M
Overall Risk (Phase 1)		**M**

7. TRANSITION STRATEGY AND ARRANGEMENTS

7.1 Requirements for Implementation Readiness

While SADC MAPP will be a phased long term program, its comprehensive scope, diverse stakeholders, new and innovative institutional arrangements (e.g., CARDESA) and processes pose the risk of delays in program launching and facing possible problems during implementation. Also, donor agencies who plan to participate in the proposed SADC MAPP now require that programs and projects meet agreed "readiness criteria" before being formally approved, to ensure that they proceed quickly and in a seamless manner to a smooth implementation process. This readiness criterion usually entails specific time-bound and sequenced actions. Details of the proposed readiness activities, their budget and timing in order to attain a smooth launching and development of SADC MAPP are given in the transition strategy document (Annex xxx) and outlined in Table 7.1 below.

Table 7.1 : Framework Implementation Plan for SADC MAPP (2008/09)

Activity	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
1. SADC MAPP set up activities															
1.1 Completion of National Consultations in 5 remaining Member States															
• Situation analysis study/consultation in DRC, Madagascar, Mozambique, Namibia and S. Africa															
1.2 Developing a pool of potential SADC MAPP participants															
• Develop guidelines for expression of interest (EOI)															
• SC meeting including preparation of agenda and papers															
• Call for expression of EOI of priority issues															
• Develop training material after analysis of EOI and stakeholder feedback															
• Training in proposal writing, networking, M&E (5 training sessions)															
1.3 IPR study															
1.4 Monitoring and Evaluation															
• M&E Baseline															

Activity	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
2. Establishment of CARDESA – Governance and Staffing															
2.1 Hiring of CARDESA Director															
• Eestablishment of permanent Board of Directors (BODC) - possibly through General Assembly (GA) of SADC stakeholders for R&D															
• Recruitment of substantive CARDESA Director by the GA															
2.2 Establishing Governance Mechanisms															
• Develop governance manual															
2.3 Hiring of CARDESA staff															
Hiring of CARDESA staff by CARDESA Director and BOD															
3. Establishment of CARDESA - Institutional Structures and Procedures															
• Finalization of Grant Management manual															
• Develop Administrative Procedures and human resources manual															
• Develop Financial Management manual															
• Institutional logistics for establishing CARDESA (physical location, registration as a legal entity, etc.)															

Completion of situation analysis: During the SADC MAPP preparation phase, national consultants were engaged in nine Member States to undertake an analysis of the agricultural situation and this information was incorporated int tot programme document. However the situation analysis could not be carried out in five Member States (Democratic Republic of Congo, Madagascar, Mozambique, Namibia and South Africa). During the regional stakeholder workshop in Maputo in December 2007, it was recommended that the studies should be carried out in the remaining five Member States in order to complete the identification of priorities for SADC MAPP in all Member States and to identify key stakeholder institutions prior to programme implementation. These studies will therefore be carried out during the transition stage.

Training on the management and use of grant funds before the formal start of the programme implementation will be a crucial readiness activity. The entire SRO secretariat staff involved with the management of the competitive grant system will need to have a sound and common understanding of the various components of the grant system planning cycle and the oversight and coordination functions related to processing of Calls and implementation of approved sub-projects. It would therefore be important that all the SRO staff, concerned members of the SRO Board, the grant system Sub-project Approval Committee (SAC), and especially the Technical Support Group (TSG) and the Grant Management Unit (GMU), would receive intensive training on the background and operations of the grant system well before it is launched.

Worldwide experience with grant systems also shows that training and capacity building of potential applicants are crucial to successful implementation, and that this takes time and concerted effort. Given that the implementation period of many SADC MAPP-funded sub-projects would be expected to be of up to three years duration, and that the sub-project Call for proposals, and the evaluation and commissioning process can easily take six months or more, the time-frame for grant system implementation under the first five-year phase of SADC MAPP will be extremely tight. It would therefore be highly desirable if, as part of SADC MAPP readiness before programme effectiveness, financing could be aligned for an intensive SADC-wide training program on grant system procedures and sub-project proposal writing. Annex xxx describes the process of developing a pool of potential SADC MAPP participants and of identifying the initial training needed during the transition stage.

Establishment of a financial management system: Once the SADC MAPP proposal document and the SRO establishment proposal have been formally approved, a Financial Management System should be developed and a manual produced outlining the financial management procedures for the SRO and for SADC MAPP implementation. This manual will be used as the basis for training the SRO Secretariat staff, beneficiaries and others relevant stakeholders on the financial management of the programme.

Establishment of grant mechanism: Once the SADC MAPP proposal document and the SRO establishment proposal have been approved, the current draft manual of the grant funding mechanism should be finalised. This manual will be used as the basis for training programme beneficiaries on the management of their grants prior to programme implementation and subsequently.

Establishing the groundwork for an open SRO recruitment process: In line with the sentiments expressed by national stakeholders and the need for the SRO to have credibility and good profile right from the start, there will be need to recruit competent staff from within the region based on an open, competitive and transparent system. Therefore, there will be need to develop appropriate procedures for staff recruitment, management and their conditions of service. These procedures should be developed and a draft human resources management manual produced during the readiness stage of the programme.

7.2 SADC MAPP and CARDESA Operational Stage

It is expected that CARDESA will become fully operational within the first 2-5 years after formal approval of its establishment. The main early actions by CARDESA management during the operational stage will include the following:

- One of the priority actions to be carried out by the core CARDESA staff would be to prepare a Strategic Plan for CARDESA, taking a participatory approach with the regional R&D stakeholders. This strategic plan would include: a vision and mission statement, updating and prioritization of the main objectives, measurable outcomes (and intermediate outcomes), functions (including complementarities with the FANR Directorate), an updated and validated financing strategy (including a sustainability strategy and action plan), an updated budget for five years, and an M&E action plan. Terms of Reference for the development of the M&E system and the Strategic Plan are given in the CARDESA establishment report (Annex xxx) The Strategic Planning process for CARDESA will start immediately after the Strategic Planning Coordinator is recruited, and would require about 4 months to prepare for the Board's review and approval;
- Financial Management System is updated and made operational within two months of appointing Financial Management officer;
- SADC MAPP Implementation Manuals are updated by CARDESA Director and core staff, and approved by the Board of Directors within 2 months after posting the Director and 'core' staff;
- M&E System is updated/established within 4 months of appointment of M&E Coordinator;
- Launching of SADC MAPP's Phase 1 subprojects (based on Grant Scheme) within 4 months of appointing the Grant Management Unit Coordinator;
- Regional R&D priorities updated and agreed upon by end of Year 5; and
- Stakeholders strategic partnerships fully established by end of Year 5.

APPENDIX 1: RESULTS FRAMEWORK [24]

Programme Development Objective	Programme Outcome Indicators	Use of Programme Outcome Information (during implementation period)
Phase 1 objectives: (1) Strengthen SADC R&D institutions to be more pluralistic, participatory, sustainable, and responsive to SADC regional R&D priorities;	(a) Establishment (by 2008) and effective functioning of a subregional organization (SRO) that implements sound agricultural R&D priority activities for the SADC region (by 2012)	The effective and timely establishment of the SRO and its strengthening will be the most critical action to help ensure the success of the proposed MAPP.
	(b) No. of (----------) SADC countries and No. and type of country and regional stakeholder organizations which undertake joint regional R&D activities in line with regional agricultural R&D priorities (by 2012)	An initial positive and growing trend in participation indicates responsiveness of the programme to stakeholder demands (and lack thereof shows the need for appropriate adjustments)
	(c) No. and type of joint R&D activities (per participating country and SADC Region), which are participatory, demand driven, sustainable, and in line with the regional R&D priorities.	Helps link MAPP supported joint R&D activities with regional R&D priorities and ensure activities are demand driven and reflect institutional and network comparative advantages
(2) Contribute to better farmer access to and increased adoption of more profitable and environmentally sustainable technologies and enhanced market access within the SADC region, particularly for smallholders	(a) No. and effectiveness of SRO initiatives to stimulate reform or strengthen national R&D systems in response to country stakeholder priorities	Ensures the SRO is responsive to strategic demands from participating stakeholder institutions
	(b) No. and % of farmers, disaggregated by gender (especially smallholders) in the SADC region that have benefited economically as a result of greater access, awareness, participation or adoption of MAPP financed regional agricultural R&D technologies or other	Will help ensure effective targeting of MAPP activities on its ultimate beneficiaries (i.e., smallholders, and by gender) and guide relevant adjustments to the interventions, in accordance with

[24] Good international practices suggest using a results framework, rather than the traditional logframe, to give greater attention to measurable outcomes. The key question is: If the programme is successful (at the end of Phase 1), what will be its principal outcome for the primary target group? The following questions will be answered…1) what group is targeted directly by the programme as the key recipient of programme benefits? What is the "secondary" group? (2) Immediately, after the close of 1st phase, what problem(s) have been solved for this target group(s)? (3) What will the target group(s) be doing differently after the programme (1st phase) that should make it better off?

Programme Development Objective	Programme Outcome Indicators	Use of Programme Outcome Information (during implementation period)
	initiatives by 2012 (regional is defined as the result of at least 2 countries joint efforts);	the implementation plan.

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
<u>Theme 1 outcome</u>: Enhanced farmer empowerment and market access		
(1) Improved enabling environment for expanded farmer access to improved and affordable inputs (particularly seeds and fertilizers)	(a) No. of MAPP supported studies and initiatives that are adopted by SADC regional policy entities and which contribute to approved regional policies and strategies for agric. seed and fertilizer supply and access by farmers	Will help keep a sharp focus on the most appropriate interventions, while also coordinating closely with other relevant regional and country agencies and initiatives.
	(b) Agreed upon action plan to support implementation of the regional policies and strategies of input supply (with a focus on seeds and fertilizers)	See above
(2) More effective farmer and producer organizations at regional and national levels	(a) No. of farmers organizations receiving technical assistance that adopt good practices and the % change in their membership and volume of activities	Will help ensure that good practice information and lessons learned is responsive to smallholder needs
	(a) No. and quality (as measured by assessment reports) of partnerships that share good practices and build capacities in farmer empowerment	Will help ensure partnerships are achieving desired results.
(3) Improved enabling environment for farmer empowerment at the region and national level	(b) No. and type of regional and national institutions which are strengthened to develop improved national farmer empowerment mechanisms and implement changes or reforms	Will help keep a focus on assisting relevant regional organizations and their effectiveness. The number should be increasing each year.
(4) Increased and more	a) No. of participating groups, events/activities which	The number should increase each year, along with

[25] This section should capture performance which can be observed & measured during programme implementation (of Phase 1), attributable to MAPP, and focuses on the performance of key actors, and the value-added to achievement of the PDO. These performance measures/indicators will enable relevant adjustments during implementation, based on the MAPP/SRO M&E system.

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
effective agribusiness partnerships between farmer groups and private sector at both national and regional levels	generate and share good practices and lessons learned on agribusiness partnerships, and No of people reached by these activities b) No. and type of networks and agribusiness partnerships developed between farmer groups and the private sector, at both national and regional levels	evidence of their effectiveness. Limited generation and application of good practice shows need for adjustment The number of networks and working partnerships should increase each year, lack thereof shows evidence of their ineffectiveness
<u>Theme 2 outcome</u>: Research and Technology Generation (1) Increased access to and generation or adaptation of technologies at the regional and national levels (2) Increased joint research activity on regional priorities	(a) No. and type of partnerships and networks (with MOUs) between stakeholders that strengthen national-regional linkages, with evidence of positive results in addressing regional R&D priorities (b) No. of satisfactory completed inventories which identify national and regional priorities and research thrusts. (c) No. and type of MAPP financed joint research activities showing satisfactory implementation progress and which are in line with the agreed upon regional research priorities (d) No. and effectiveness of MAPP financed Centres of Leadership and Specialty Networks in building regional research capacity (e) No. of regional knowledge sharing and capacity building activities financed by MAPP and % rated effective by quality assessments	The number of partnerships and networks (with signed MOUs) should increase each year, along with evidence of their effectiveness & results. Will help build on existing information and encourage collaboration Indicates whether there are effective joint research activities. In general the number should be increasing each year, with evidence of their strategic results. If not, MAPP management will need to make appropriate intervention. As above As above
(3) Strengthened institutional capacities to carry out the regional R&D research priorities and improve the	a) No., type and effectiveness of demand-driven and MAPP-funded activities that focus on capacity building of NARS to reform and strengthen the R&D generation system (as measured by quality assessments)	The number should be increasing each year, with evidence of their strategic results.

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
responsiveness of NARS to their stakeholders	b) No. of NARS that adopt reforms or changes promoting a supportive, farmer centred research environment c) No. of stakeholder organizations that participate in training workshops and % whose sub-project proposals are eventually approved (and by No. of countries)	The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results (and should show regional linkages)
<u>Theme 3 outcome</u>: Enhanced Farmer Led Advisory Services and Innovation Systems (1) "Best-fit" agricultural technologies are adapted, adopted, and scaled-out.	a) No. of action plans at regional and national level that identify existing and potential technologies and practices for scaling out and % which are implemented b) No. of NARS that are facilitated by MAPP to share methodologies for scaling out "best-fit" technologies and successful experiences in market and farmer-led technology applications c) No. of "best-fit" technologies that are scaled out within the region as a result of MAPP-funded subprojects or initiatives (such as DONATA), and % with evidence of positive outcomes	The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results. Special attention needs to be placed on this performance measure.
(2) Farmer advisory services and supporting institutions are reformed and strengthened, consistent with the regional R&D priorities	(a) No. and type of information shared on good practice and lessons learned on advisory services, with evidence of strategic results (b) No. of knowledge products (working papers or other products) drawing on regional experience in advisory services that are produced and disseminated (c) No. and effectiveness of demand-driven and MAPP-funded subprojects and initiatives which draw on regional	The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results.

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
	knowledge sources and networks to build capacity of national systems to reform and strengthen advisory services (d) No. of national systems that adopt reforms or changes to develop market oriented, farmer-led advisory services and innovation systems	The number should be increasing each year, with evidence of their strategic results. Low numbers of sub-projects and limited effectiveness indicates a need to adjust design and increase relevance
<u>Theme 4 outcome</u>: Strengthened Regional Education, Training and Learning Systems (1) Enhanced regional networks and partnerships for more innovative and responsive agricultural education and training systems	(a) No. and effectiveness of partnerships and networks (with MOUs) between key stakeholders (agricultural educational systems and research, advisory services systems, and farmers' org.), which strengthen the national-regional linkages (b) No. and effectiveness of subprojects or activities which use mass media and ICT for building partnerships for distance and e-learning, improving curriculum, and delivery and access to materials and literature,	The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results.
(2) More effective learning systems that support regional R&D innovation and training	(a) No. of regional and national institutions that introduce new methodologies and update of education and learning systems as a result of MAPP financed sub-projects or activities (b) No. of schools (secondary and below) that improve access to or participation in agricultural technology development as a result of MAPP financed sub-projects or activities	The number should be increasing each year, with evidence of their strategic results. Low numbers of sub-projects and limited effectiveness indicates a need to adjust design and increase relevance
(3) Strengthened regional education initiatives and increased stakeholder capacity for regional R&D	(a) No. and effectiveness of MAPP financed regional scholarships (degree and non-degree) for R&D training in supporting regional R&D priorities (b) No. and effectiveness of SADC region education initiatives facilitated or implemented through SADC MAPP (e.g., BASIC, SCARDA)	The number should be increasing each year, with evidence of their strategic results. The number should be increasing each year, with evidence of their strategic results.

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
	(c) No. of regional exchanges (regional JPO, sabbatical) supported by MAPP and % rated effective by participants	
Theme 5 outcome: Improved Regional knowledge, information and communication (1) Improved regional knowledge generation and capacity to support and contribute to enhanced regional ICT activities	(a) No. of knowledge sharing and capacity building activities on good practice and successful examples of ICT policy, strategy and use in the Region financed by MAPP and rated effective by participants (b) No. and effectiveness of partnerships and networks (with MOUs) between key communication practitioners (public and private, at national and regional levels) and other key MAPP stakeholders,	The number should be increasing each year, with evidence of their strategic results. Low numbers of sub-projects and limited effectiveness indicates a need to adjust design and increase relevance. The number should be increasing each year, with evidence of their strategic results.
(2) Enhanced knowledge sharing and participation of stakeholders in scaling out R&D activities through increased use of ICT within the region	(a) No. of regional or national institutions adopting the use of ICT and other media to support smallholder innovation and improve access, participation and ownership in knowledge and information system as a result of MAPP financed activities, (b) Completed reports which compile and analyze national knowledge and data for RAILS and AIMS, and other regional information management systems, and evidence of their use (c) Creation and sustained operation of an integrated regional information system (d) Completion and satisfactory implementation of action plan for enhancing the SRO information management capacity	Indicates relevance of MAPP funded activity, if there is limited uptake or adoption, interventions or designs should be adjusted. Low numbers of sub-projects and limited effectiveness indicates a need to adjust design and increase relevance The number should be increasing each year, with evidence of their strategic results. Diversity of sub-projects indicate responsiveness to the region's needs Low numbers of sub-projects and limited effectiveness indicates a need to adjust design and increase relevance

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
Theme 6 outcome: Strengthened and Sustainable Institutional Development and Capacity for Regional R&D (1) Successful establishment and effective functioning of a semi-autonomous subregional organization (SRO)	(a) Formal approval of the SRO (in 2008), including signed MOU, with evidence of strong stakeholder ownership (b) Open and transparent recruitment process and recruitment of suitably qualified SRO core staff by mid-2008 (c) Completion and agreement by SRO Board of Directors of a sound 5 year strategic and operational plan for the SRO, (including a credible financing strategy for its sustainability) by the end of Year 1 (d) Successful functioning of the SRO with achievement of key milestones and supported by effective implementation of the transitional and capacity building action plan (e) No. and effectiveness of completed partnerships (e.g., signed MOUs) between the SRO and regional/national organizations to implement MAPP activities (% of MAPP funds disbursed which are implemented by partners and meets physical and financial targets)	A delay in the formal approval of the SRO will delay MAPP's responsiveness to regional stakeholder R&D priorities The quality of staff recruited will be a major success factor (or lack thereof) Will be an important exercise to ensure SRO has a solid foundation for its work. The transitional strategy will be vital to ensure readiness of MAPP launching and responsiveness to its stakeholders. The number should be increasing each year, with evidence of their strategic results.
(2) Enhanced FANR capacity to carry out its policy, integration, and coordination roles, with regards to the regional R&D agenda, and enhanced complementarities with the SRO	(a) Agreed workplans for FANR and SRO which reflect clear complementarities and joint activities (b) Development and effective implementation of a MAPP funded FANR capacity building proposal to strengthen FANR in carrying out its role and workplans in relation to the SADC R&D agenda (c) No. and type of FANR policy initiatives and	Ensuring this complementarity of roles will be vital for the success of MAPP. Will need to be closely coordinated with other non-MAPP initiatives, and will highlight the importance of clear coordination with the SRO. This indicates the vital role of FANR and the close

Intermediate Outcomes (for each themes)[25]	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
	coordination activities that contribute to achievement of Dar es Salaam Declaration targets with regard to the R&D agenda	collaboration with and support by the SRO