

# Analysis of the Climate Change-related Elements in SADC Member States' Agricultural and Food Security Policies

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## Abbreviations

ACCRA	Adaptation to Climate Change in Rural Areas
APAP	Agriculture Policy Action Plan, South Africa
AR&D	Agricultural Research and Development
ASWAp	Agriculture Sector Wide Approach, Malawi
CAPF	Comprehensive Agricultural Policy Framework, Swaziland
CASP	Comprehensive Agricultural Sector Policy, Swaziland
CCAA	Climate Change Adaptation in Agriculture
CCARDESA	Centre for Coordination of Agriculture Research and Development for Southern Africa
ACRP	Agriculture Climate Resilience Plan, Tanzania
CLUSA	Cooperative League of the United States of America
CSA	Climate-smart Agriculture
CSAP	Climate-smart Agriculture Programme
DAFF	Department of Agriculture, Forestry and Fisheries, South Africa
DRC	Democratic Republic of Congo
FANRPAN	Food Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agriculture Organisation of the United Nations
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
LIMID	Livestock Management and Infrastructure Development, Botswana
MAL	Ministry of Agriculture and Livestock, Malawi
NAIP	National Agricultural Investment Programme
NAMPAADD	National Master Plan for Arable Agriculture and Dairy Development, Botswana
NAP	National Adaptation Plan
NAPA	National Adaptation Programmes of Action
NAPFS	National Action Plan for Food Security, Lesotho
NPAD	National policy on Agricultural Development, Botswana
PAEI	Agricultural Policy and Implementation Strategy, Mozambique
PDMPSA	Development Plan for the Agricultural Sector, Angola
PEDSA	Strategic Plan for the Development of the Agricultural Sector PDP Fishery Master Plan, Mozambique
PNIA	Plan National d'investissement Agricole, DRC
PSAEP/PNIAEP	Programme Sectoriel Agriculture Elevage Peche Plan National D'investissement Agricole, Madagascar
RAP	Regional Agricultural Policy
SAAPS	South African Agricultural Production Strategy
SADC	Southern Africa Development Community in Southern Africa
SNAIP	Seychelles National Agriculture Investment Plan/Swaziland National Agriculture Investment Plan
UNDP	United Nations Development Programme

## Executive Summary

This report analyses the status of incorporation of climate change adaptation and climate-smart agriculture (CSA) measures in the SADC Member States' agriculture and food security frameworks and policies. It details the current situation in the SADC member states with respect to the existence of policies, strategies and programmes that were primarily designed to build resilience to climate change among farmers.

All the SADC Member States are party to the United Nations Framework Convention on Climate Change (UNFCCC), which is the main convention aimed at guiding countries in their efforts to addressing the challenges posed by climate change. Further, all SADC Member States have developed and submitted their Intended Nationally Determined Contributions (INDCs) on climate change adaptation and mitigation to the UNFCCC Secretariat.

All the SADC Member States have prioritised agriculture as an important sector within their INDCs. Zambia, Malawi, Zimbabwe and Madagascar, Mauritius have clearly outlined CSA as important contributor to building climate resilience. While the other SADC Member States have identified different aspects of CSA, they do not make reference to the concept itself.

The SADC Member States have all been actively engaged in the development of the SADC RAP. While the RAP is cognisant of the importance of building resilience in the agriculture sector, none of the SADC Member States' national policies, strategies and programmes mention the RAP explicitly – primarily due to their formulation often predating the RAP.

The National Agricultural Investment Plans (NAIP) for Malawi, Madagascar, Malawi, Mauritius, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe mention the importance of climate change adaptation in the agriculture sector. However, climate change is only addressed as a component of other agriculture activities and is not mainstreamed in all the prioritised activities. Only the Seychelles NAIP has mainstreamed climate change considerations into all its prioritised activities. However, there was no clear information on the status of implementation of some of the activities that have been identified.

With regards to national agricultural extension strategies, only Zambia mentions the importance of supporting farmers in building their capacity to adapt to the changing climate explicitly. Democratic Republic of Congo, Tanzania and Malawi have standalone strategic documents on agriculture extension, while all countries have a section in their national agricultural strategies/policies which focus on agriculture extension.

Overall, there are opportunities in SADC Member States to further strengthen the reformulation or development of agricultural policies, strategies and programmes that fully integrate climate change adaptation and CSA. In particular, the national agricultural extension services still lack strategic frameworks and materials that promote adaptation and CSA practices on CSA in their systems.

## Programme Background

The German Government through the Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Southern African Development Community (SADC) have established the 'SADC Adaptation to Climate Change in Rural Areas in Southern Africa' (ACCRA) Programme, funded by the Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ). The programme is implemented by the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA). ACCRA contributes towards the implementation of the climate-relevant elements of the SADC Regional Agricultural Policy (RAP). It operates in two action areas: (1) Regional Knowledge Dissemination on Climate-Smart Agriculture, and (2) Climate Proofing of Agricultural Value Chains. The aim of the first action area is for SADC member states<sup>1</sup> to have access to improved knowledge management systems for the dissemination of climate-smart agriculture (CSA). The aim of the second area is for SADC member states to increase their capacities to disseminate and finance climate-smart practices and technologies in priority agricultural value chains. The programme objective of ACCRA is for CCARDESA to have increased the capacities of the SADC member states to integrate climate change aspects into their agricultural programmes and investments.

### **Institutional background: CCARDESA**

CCARDESA is a subsidiary organisation of SADC that was established by the 15 SADC Member States to coordinate agricultural research and development (AR&D) in the region. CCARDESA was established in 2011 and has been continuously building its capacity to deliver on its mandate. Empowering smallholder farmers to improve their production efficiency and to generate higher incomes through increased market engagement as well as undertaking sustainable agricultural practices in the face of worsening climatic conditions requires better access to appropriate information and harnessing of emerging practices and technologies. Over time, resources have been committed towards developing agricultural practices and technologies which produce higher yields under certain climatic conditions with minimum damage to the environment. However, adoption and use of climate-smart and sustainable practices and technologies is still low in the region.

## Introduction

The Southern African Development Community (SADC) is strongly affected by the impacts of climate change. Climate scenarios predict rising temperatures and increasing frequency and intensity of extreme weather events such as droughts and floods. These pose an increasing threat to the population and will particularly impact on agriculture. The agriculture sector in the SADC Region, which includes crops, livestock, forestry and fisheries, accounts for more than 17% of the region's gross domestic product (GDP) and provides a livelihood to about 61% of the region's labour force (RAP, 2014). The agriculture sector is highly vulnerable to impacts of climate change as most smallholder farmers practice rainfed agriculture.

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<sup>1</sup> 'Member States' (MS) refers to the 15 SADC countries and their Governments, while 'member states' refer to a number of partners, such as government agencies, research institutions, extension services, private sector and civil society organisations within the SADC countries.



In order to enhance the sectors contribution to the regional integration efforts, the SADC Council of Ministers endorsed the Regional Agricultural Policy (RAP, 2014) and the Food and Nutrition Security Strategy (2015-2025) which aims to significantly reduce food and nutrition insecurity in the region by 2025 (FNSS, 2014). In the SADC region, national agricultural policies and strategies are starting to take climate change into account, but have not been translated into concrete programmes and investments yet. A constraint is that SADC member states do not have the capacity to integrate climate change aspects into agricultural programmes and investments.

## Objectives

The aim of this report is to assess the status of incorporation of climate change related elements of the Regional Agricultural Policy (RAP) in the SADC member states' agriculture and food security strategies, policies and programmes.

The specific objectives of the study are to:

Assess the status of incorporation of climate change related elements of the RAP into SADC Member States' agriculture and food security strategies, National Agriculture Investment Plans (NAIPs) and agriculture extension strategies, as well as other relevant policies and programmes;

Assess the extent to which national agricultural extension services have incorporated priority climate-smart practices, provided by CCARDESA or national agricultural research institutions, into their advisory strategy for agricultural producers;

Assess opportunities for climate proofing of national agricultural policies, strategies and programmes in the SADC Region.

The findings presented in this report will help inform the prioritisation of interventions under ACCRA while avoiding duplication of efforts with ongoing initiatives and helping to establish synergies with existing programmes. It also serves as a baseline for the ACCRA monitoring and evaluation system, by taking stock of existing policies, strategies and programmes in SADC member states at the start of the programme in January 2016.

## Methodology

The study involved assessing climate change content in the NAIPs (the main agricultural investment plan for some countries), agriculture policies and strategies, and agriculture extension strategies and approaches and how these are aligned or linked to RAP's ***Policy Statement 20.1: SADC shall support measures to improve the region's capacity to adapt and mitigate climate change and variability.***

The proposed interventions in the RAP specifically include (RAP, 2014):

Strengthening regional research in developing appropriate adaptation strategies for climate variability and change in the agriculture sector;

Developing capacity for carbon stock inventory and analysis with a view to enabling the agriculture sector to benefit from carbon trading;

Promoting AR&D on climate change and variability data and information generation and dissemination for the provision of early warning information to farmers;

Promoting the adoption and incorporation of sound environmental impact mitigation measures in national and regional agricultural policies and programmes;

Ensuring the effective engagement and participation of the agriculture sector in the international dialogue on climate change; and

Supporting SADC member states to achieve their own climate change policies, strategies and programmes.

National policies, strategies and programmes were screened for content on any of the interventions listed above under RAP Policy Statement 20.1 (See Annex 1).

Further, the available national extension strategies, policies and manuals were screened for content on the following CSA practices:

- Drought resilient seed varieties,
- Fertiliser management,
- Weather index insurance,
- Weather information,
- Information, communication and technology (ICT) and climate,
- Sustainable water management,
- Intercropping,
- Rangeland management,
- Blue economy,
- Conservation agriculture,
- Natural tree regeneration,
- Agriculture research and development (AR&D),
- Integrated crop-livestock management,
- Agroforestry.

A study like this one requires access to current information on national policies, strategies and programmes on agriculture and climate change. The study relied primarily on web-based information and on documents provided by some SADC Member States. Many documents are not available in the public domain, even if they have been referred to in some national documents. It was particularly challenging to find national extension strategies and documents.

## **Global Climate Policy Processes**

### **INDCs and NDCs**

In December 2015, members of the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Paris Agreement on Climate Change with its main objective to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty (Paris Agreement, 2015). In preparation for the Paris Agreement, countries publicly outlined what climate action they intended to undertake under the new international agreement, known as their Intended Nationally Determined Contributions (INDCs). The INDCs are

country specific proposed measures to address climate change adaptation and mitigation and were submitted to the UNFCCC Secretariat prior to the Paris Conference.

As countries are formally joining the Paris Agreement, their INDCs are converted into Nationally Determined Contributions (NDCs), which will form the country’s formal commitment to the global response to climate change as part of the Paris Agreement. NDCs are considered as main vehicles for supporting the mitigation and adaptation measures to climate change at country level and include national policies, strategies and programmes.

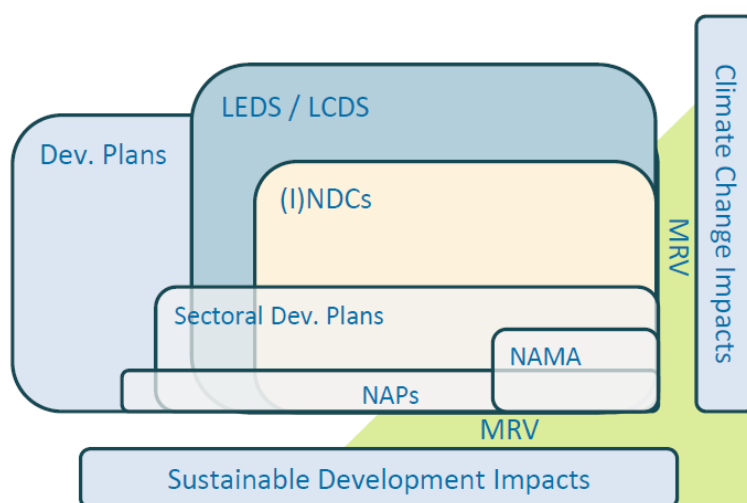
The NDCs can be implemented at both national and regional levels. At regional level, SADC Member States approved the RAP, which includes climate change related elements (RAP, 2014). With the RAP implementation being planned to commence in 2017, the proposed adaptation (and to a lesser extent mitigation) measures will need to be implemented within the framework of the SADC Member States’ NDCs.

All 15 SADC Member States submitted their INDCs to the UNFCCC Secretariat in 2015. Countries are following different approaches to transforming INDCs to NDCs and to further specifying their commitments under the UNFCCC. This process is ongoing.

All the SADC Member States have prioritised agriculture as important sector within their INDCs. Zambia, Malawi, Zimbabwe and Madagascar, Mauritius have clearly outlined CSA as important contributor to building climate resilience. While the other SADC Member States have identified different aspects of CSA but do not make reference to the concept itself.

Figure 1 shows the positioning of (I)NDCs within national policy planning processes. It shows the complexity of climate actions across different national processes. Further elements to national adaptation planning include National Adaptation Plans (NAPs) and National Adaptation Programmes of Action (NAPAs).

**Figure 1: (I)NDCs in the Context of National Policy Planning (BMUB, 2016)**



National Adaptation Plans (NAPs) and **National Adaptation** Programmes of Action (NAPAs)

In 2010, as part of the support to Least Developed Countries (LDCs), the UNFCCC established a process to support the formulation and implementation of short-term, urgent and immediate adaptation needs through the National Adaptation Programmes of Action (NAPAs). Moreover, NAPAs are focused on medium- and long-term adaptation needs. While NAPAs are only implemented by LDCs, all developing countries are invited to formulate NAPAs.

While the formulation of NAPAs and NDCs are parallel processes, the aim is to have coherence at national level and ensure that the NAPAs inform the adaptation components of the NDCs (or vice versa).

In the SADC Region, all LDCs formulated NAPAs and most countries are working towards developing NAPAs.

### **Agriculture in the (I)NDCs**

According to Richards et al. (2015), most parties to the UNFCCC have included agriculture within their (I)NDCs. In sub-Saharan Africa, many parties included mitigation targets and adaptation components related to agriculture, as well as other land use and forestry. Also, most parties have indicated the need for international climate finance to help achieve the specified targets, as well as capacity and technology transfer needs specific to agriculture. Moreover, many (I)NDCs refer to the strong linkages between mitigation and adaptation, especially in the agriculture sector – either as mitigation co-benefits of adaptation or vice versa.

The SADC Member States have included agriculture in their (I)NDCs, mostly in adaptation but to some extent also in the mitigation components. This is due to the important role the agriculture sector plays with respect to economic development, food security and livelihoods in the region (See annex 1).

## **Continental, Regional and National Policy Frameworks**

### **CAADP**

The African Heads of State Summit held in Maputo in 2003 endorsed the Comprehensive Africa Agricultural Programme (CAADP) as the overarching framework for transforming agriculture and attainment of food security in the continent. CAADP's goal is an agricultural-led development that eliminates hunger, reduces poverty and food insecurity, thereby opens the way for an expansion for exports and puts the continent on a higher economic growth path within an overall strategy of sustainable development and preservation of the natural resource base (NEPAD, 2003).

At regional level, CAADP coordination is done by the Regional Economic Communities (RECs), which facilitate implementation of CAADP at country level. RECs have developed policies and strategies aimed at implementing the objectives of CAADP.

At national level, National Agricultural Investment Plans (NAIP) are being developed in order to implement CAADP at country level. The NAIPs for Malawi, Madagascar, Mauritius, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe mention the importance of climate change adaptation in agriculture (CCAA). However, climate change is only addressed as a component of other agriculture activities and is not mainstreamed in all the prioritised activities. Only the Seychelles NAIP has mainstreamed climate change considerations into all its prioritised activities. However, there was no clear information on the status of implementation of some of the activities that have been identified.

## **Regional Agriculture Policy (RAP)**

The SADC Council of Ministers in August 2014 endorsed the SADC Regional Agricultural Policy (RAP) as the main policy document for defining common *agreed objectives and measures to guide, promote and support actions at regional and national levels in the agricultural sector of the SADC Member States in contribution to regional integration and the attainment of the SADC Common Agenda* (RAP, 2014).

RAP has four specific objectives: (I) enhance sustainable agricultural production, productivity and competitiveness, (II) improve regional and international trade and access to markets of agricultural products, (III) improve private and public sector engagement and investment in the agricultural value-chains, and (IV) reduce social and economic vulnerability of the region's population in the context of food and nutrition security and the changing economic and climatic environment.

The RAP is aligned to the goals of CAADP and recognises the importance of tackling climate change impacts and variability in the agriculture sector. Interventions on climate change are under *RAP Policy Statement 20.1: SADC shall support measures to improve the region's capacity to adapt and mitigate climate change and variability*.

In order to implement the RAP, SADC has developed the Regional Agriculture Investment and Implementation Management Plan (2017-2022) (RAIP, 2016). It aims at outlining and implementing priority programmes of the RAP. Interventions on building climate resilience will be supported under the Sub-programme 4.3: *Improve capacities for climate change adaptation and mitigation* which focuses on implementing the Regional Climate Change Strategy.

The SADC Member States have all been actively engaged in the development of the SADC RAP. While the RAP is cognisant of the importance of building resilience in the agriculture sector, none of the SADC Member States' national policies, strategies and programmes mention the RAP explicitly – primarily due to their formulation often predating the RAP.

## **National Policy Frameworks in SADC**

At national level, policy and planning departments in the ministries responsible for agriculture coordinate the implementation of the RAP and CAADP. Alignment or domestication of the regional or continental frameworks involves incorporating elements of regional or international policies and strategies into national policies and strategies.

None of the current national strategies and policies on agriculture in the SADC Member States mention the RAP because they were developed before the SADC Secretariat commenced the implementation phase of RAP. However all SADC Member States are party to the UNFCCC and have prioritised adaptation to climate change in the agriculture sector in their (I)NDCs. In this regard, most countries are implementing activities aimed at building the resilience of the agriculture sector and rural communities to climate change and these interventions are in line with the RAP but were initiated without the guidance of the RAP.

National agricultural extension strategies are important documents to help disseminate CSA and climate adaptation to local level. However, only Zambia and Mauritius mention the importance of supporting farmers in building their capacity to adapt to the changing climate explicitly. Democratic

Republic of Congo, Tanzania and Malawi have standalone strategic documents on agriculture extension, while all countries have a section in their national agricultural strategies/policies which focus on agriculture extension.

Climate-related agricultural programmes in the region are rare, particularly when it comes to CSA. The ones that exist have been captured below. These are mostly supported by development partners which aim to address climate change within the context of broader programmes. Most include some elements of climate change adaptation that are in line with climate change-related RAP elements. Moreover, multi-country programmes to mention are the Famine Early Warning Systems Network (FEWS NET) which is a leading provider of information and analysis on food insecurity, the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) which is focusing on providing scientific information on climate, Vuna which is helping farmers in East and Southern Africa battle the impacts of climate change, and CGIAR research for development programmes which seek solutions to help the world's poorest farmers become resilient to climate change (e.g. CGIAR Research Programme on Climate Change, Agriculture and Food Security<sup>[w1]</sup>).

The following sections provide country specific summaries of key agriculture policies and strategies in the SADC member states and whether climate change is articulated in them. The country sections start with a brief overview of agriculture in the respective country, elaborate on the national policy frameworks related to agriculture, food security and the climate change related elements with respect to adaptation and mitigation. Moreover, national programmes and strategies aligned to climate change related RAP elements are presented. The country sections then provide an overview of the agricultural extension system in the respective country and whether the strategies and approaches explicitly include climate change related measures. Finally, the section concludes with a brief statement regarding the opportunities or barriers for ACCRA engagement in supporting the implementation of climate change-related RAP elements at country level.

## **Angola**

### **Overview of Agriculture**

The agricultural sector in Angola accounts for 12% of the GDP in 2015 and employs around 69% of the total labour force (USAID, 2016; FAO, 2015). Angola is one of the SADC Member States that has a huge potential for agricultural development. Currently, the country has 35 million hectares of arable land of which 8.63% is irrigated (SADC, 2011).

Beans, cassava, groundnuts, maize and vegetables are the main food commodities produced in Angola. Livestock and fisheries are equally important subsectors contributing to food security.

Some of the major challenges farmers face include lack of commercial networks for the marketing of their agricultural products, rainfall variability, inadequate sanitary infrastructure, lack of financial incentives, lack of agricultural inputs and support mechanisms (SADC, 2011).

## Agricultural Policies and Programmes (with climate change relevance)

### Agricultural Policy Framework

The Ministry of Agriculture developed its Medium-Term Development Plan for the Agricultural Sector, the Development Plan for the Agricultural Sector, Angola(PDMPSA) 2013-2017 in 2012 (Government of Angola, 2012). The PDMPSA is the main policy and strategy document guiding investments in the agriculture sector. It was formulated to support the development of agriculture, livestock, forestry and other natural resources through sustainable transformation of subsistence farming to commercial, market-oriented agriculture in order to achieve food security, well-being of families and the promotion of national agro-industries.

PDMPSA aims at implementing the following four specific strategic objectives: (1) To promote a wider campaign of professional training and transfer of technology to optimise agricultural production and productivity, (2) To implement a process of agrarian transformation and rural development based on family farming, cooperativeness, increase irrigated areas through the rational and sustainable use of water resources, and support public-private partnerships, (3) To establish a mechanism for tight coordination and synergies between different sectors and other stakeholders in rural areas, emphasising society participation in the national development process, (4) To contribute to the process of industrialisation of the country (Government of Angola, 2012).

The Government has not yet formulated its NAIP under CAADP. PDMPSA does not make explicit reference to the SADC RAP or other regional policies.

### Climate Related Agriculture Policy Elements

The PDMPSA is silent on the effects of climate change on agriculture. However, it has prioritised the increase in irrigated areas through the rational and sustainable use of water resources and use of indigenous knowledge to enhance agriculture productivity. PDMPSA is not a climate resilience programme and activities, though addressing climate change, were planned purely for enhancing productivity of the agricultural sector.

Angola has identified priority climate change mitigation and adaptation measures in the agriculture sector within its INDC and NAPA. Proposed agriculture interventions are listed in Table 1.

**Table 1: Proposed adaptation and mitigation measures in Angola**

Adaptation measures in INDC	Mitigation measures in INDC	NAPA
<ul style="list-style-type: none"><li>• Sustainable fisheries</li><li>• Early warning system</li><li>• Disaster risk reduction and food security</li><li>• Sustainable land and soil management</li><li>• Rainwater harvesting and improved irrigation</li></ul>	<ul style="list-style-type: none"><li>• Production of Ethanol</li><li>• Emission reduction from animal production</li><li>• Reduction of wild fire</li></ul>	<ul style="list-style-type: none"><li>• Development of techniques for different crops</li><li>• Promote cultivation techniques for increased water retention, erosion prevention</li><li>• Promote changes in agricultural practices for the conservation of soil humidity and nutrients, avoiding superficial draining, controlling erosion</li><li>• Improvement in the use and availability of water and soil erosion control</li><li>• Promote rotation of cultures and changes in the periods of planting and harvesting</li></ul>

<ul style="list-style-type: none"> <li>• Development and use of resilient varieties</li> <li>• Crop management</li> <li>• Livestock management</li> <li>• Improved disease/pest control</li> </ul>		<ul style="list-style-type: none"> <li>• Development of new varieties of plants and techniques to increase added value</li> <li>• Drip irrigation and concentration of irrigation on growth periods</li> <li>• Promote integration of agriculture, livestock and forestry, and installation of wind breakers</li> <li>• Promote reforestation in arid and semi-arid zones</li> </ul>
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Source (INDC, 2015; NAPA, 2011)

### **Climate Related Agricultural Programmes**

The Government of Angola has been supporting implementation of programmes which build the resilience of the agriculture sector to drought (RAP, 2014). Some of the programmes currently being supported include: small irrigation schemes support programme; promotion of a project on biofuels; marine aquaculture programme; support widespread adoption of conservation agriculture.

### **Agricultural Extension System, Strategies and Guidelines**

The Ministry of Agriculture, Rural Development and Fisheries is responsible for the provision of public agricultural extension services through its Institute for Agricultural Development (IDA) (*Instituto de Desenvolvimento Agraria*).

Farmers' organisations are key players in the provision of extension services. The Confederation of Farmer Associations and Agricultural Cooperatives of Angola (UNACA) and the *Cooperativa Agropecuaria dos Camponeses Benguela* (CAPCAB) are the main farmer-based organisations delivering agriculture extension services.

The private sector also plays a critical role in the delivery of extension services (GFRAS, 2017). The Forum of the Angolan Non-Governmental Organisations (FONGA) and some international NGOs have been active in the field of agricultural development (including World Vision, Save the Children Fund, AFRICARE, Catholic Relief Services, and Cooperative League of the United States of America (CLUSA)) and have also been providing extension services (GFRAS, 2017).

There is no specific policy or strategic document on agricultural extension. However, the Government is implementing the Rural Development and Extension Programme (PEDR) which is the main programme for strengthening the capacity of the extension services and farmers in the use of new technologies and practices of soil management. The specific objectives of the programme include: (i) improve and organise production systems in rural areas; (ii) establish and strengthen peasants' associations; and (iii) increased production and productivity of the end-user production systems (PDMPSA, 2012).

The Rural Development and Extension Programme does not clearly outline how the extension service will include the provision of information on CCAA/CSA measures in their work with farmers.



## **Opportunities for ACCRA Engagement**

The implementation phase for the PDMPSA is from 2013 to 2017. In this regard, there might be an opportunity for engaging the Ministry of Agriculture in the development of the next phase of PDMPSA so that CCAA/CSA elements of the RAP can be taken on board.

## **Botswana**

### **Overview of Agriculture**

The Government of Botswana has identified agriculture as one of the priority sectors earmarked for economic development and diversification. However, the contribution of the agriculture sector to the GDP declined after the discovery of minerals. According to SADC, the contribution of agriculture dropped from 40% at independence (1966) to about 2.4% in 2007 (SADC Secretariat, 2011).

The main agricultural production systems in the country are livestock and crop production. Beef cattle is by far the most dominant sector in terms of importance, as it is a major export sector. There is a very limited commercial crop production sector. The main crops produced include maize, millet, sorghum, beans, pulses, fruits and vegetables. However, the country relies heavily on food imports.

The main challenges affecting the agriculture sector include changing climate, soil degradation, limited access to water, lack of appropriate technology, etc. (SADC Secretariat, 2011).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

In Botswana, agricultural development is mainly guided by the National Policy on Agricultural Development (NPAD) of 1991. The policy intends to improve food security at both household and national level, diversify the agricultural production base for more income opportunities, increase agricultural output and productivity, increase employment opportunities for the fast growing labour force, provide a secure and productive environment for those engaged in agriculture, and conserve scarce agricultural and land resources for future generations (Republic of Botswana, 1991). The Government is in the process of developing a new policy for the agriculture sector.

The policy makes no direct reference to the RAP. The Ministry of Agriculture has embraced CAADP but has not yet commenced the process of formulating a NAIP.

The Ministries of Agriculture and Environment, Wildlife and Tourism have planned a climate-smart agriculture programme (2015-2030) (CSAp, 2015). The CSA framework programme is aligned to CAADP and the national policy. The CSAp is not yet funded and the country is in a process of formulating specific interventions to be implemented. CSAp just like the NPAD does not make reference to the RAP.

#### **Climate Related Agriculture Policy Elements**

Botswana is in a semi-arid region and most agricultural practices supported by the government are aimed at enhancing sustainable utilisation of water resources as well as production of breeds and crop varieties which are tolerant to heat stress. The elements of the NPAD, which are climate change related include the following: building and maintaining national capacity to deal with drought and

other emergencies; providing the farming community with technology necessary to ensure efficient production under the country’s agro-ecological conditions; capital development of large irrigation dams and related infrastructure to increase national usage of water for agricultural purposes.

NPAD does not explicitly address the importance of supporting interventions on climate change adaptation in the agriculture sector.

Botswana has prioritised agriculture in its INDC. The prioritised activities on adaptation and mitigation are highlighted in Table 2. The country has not yet developed its NAP.

**Table 2: Proposed adaptation and mitigation measures in Botswana**

Adaptation measures in INDC	Mitigation measures in INDC	NAP
<ul style="list-style-type: none"> <li>• Sustainable land management</li> <li>• National water master plan</li> <li>• Sustainable water management</li> <li>• Development and use of resilient varieties of animals</li> <li>• Crop management</li> <li>• Livestock management</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock management</li> </ul>	No NAP

Source (INDC, 2015)

### Climate Related Agricultural Programmes

The Livestock Management and Infrastructure Development (LIMID) programme and the National Master Plan for Arable Agriculture and Dairy Development (NAMPAADD) are the main strategic programmes currently implementing CSA interventions.

Specifically NAMPAADD is a masterplan intended to streamline arable agriculture and dairy development programmes to address existing government policy objectives, namely food security, poverty alleviation and economic empowerment of rural people. It targets rain-fed farming, irrigated farming, dairy farming and beekeeping.

LIMID aims at promoting food security through improved productivity of cattle, small livestock and Tswana chickens; improving livestock management; improving rangeland resource utilisation and conservation; eradicating poverty; and providing infrastructure for safe and hygienic processing of poultry (meat).

The Agriculture Services Support Project (ASSP) aims at achieving a viable and sustainable smallholder agricultural sector based on farming as a business, and not reliant on subsidies or welfare measures.

All these programmes were designed to enhance agriculture productivity and contain elements to address sustainable soil and water management. However, these programmes were not originally intended for enhancing resilience to climate change, even though certain interventions that are being promoted, such as irrigation development, are also critical for building the agriculture sector’s resilience to climate change.

The CSAp focuses on improving agriculture productivity and farmers’ incomes, building resilience and associated mitigation co-benefits; value chain integration, research for development and innovation,

improving and sustaining agricultural advisory services and improved Institutional coordination for effective implementation of the programme. As mentioned above, it is not yet funded.

### **Agricultural Extension System, Strategies and Guidelines**

The Government of Botswana in its NAP has identified the provision of research, extension and manpower development services as key to the development of the agriculture sector (Republic of Botswana, 1991). The Ministry of Agriculture provides agriculture extension services for crop and livestock subsectors primarily through the Department of Extension Services Coordination.

There are a number of farmers' associations or cooperatives that are providing extension services to its members, such as the Mahabapi Small Scale Farmers Association, Pandamatenga and Southern Horticulture Growers Association.

The private sector is not actively engaged in the provision of extension services but there are some NGOs such as the Botswana Council of Non-Governmental Organizations (BOCONGO).

There is no specific strategy document on agricultural extension services. The Government policy is that of providing extension services to the farmers (Republic of Botswana, 1991). However, the policy does not mention what climate adaptation measures should be promoted and how these will be disseminated to the farmers.

### **Opportunities for ACCRA Engagement**

The Ministry of Agriculture is currently in the process of revising the National Agricultural Policy and this provides an important window of opportunity to support climate proofing of the draft policy. Considering existing networks, ongoing engagement and the close proximity of offices, this is a clear opportunity for ACCRA to engage.

## **Democratic Republic of Congo (DRC)**

### **Overview of Agriculture**

The agricultural sector accounts for 42.5% of GDP and employs 70% of the active population (World Bank, 2016). Smallholder farmers produce more than 80% of the national agriculture production (Government of Democratic Republic of Congo, 2013). Agriculture production is predominantly rainfed and main crops grown are cassava, plantains, maize, rice, groundnuts, beans and oil palm. Industrial crops (cotton, coffee etc.) are grown on small areas.

Currently the agriculture sector is faced with the challenges of lack of access to mechanised equipment, poor agriculture marketing structures and lack of access to affordable appropriate agricultural inputs (Government of Democratic Republic of Congo, 2013).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Ministry of Agriculture has developed the Agricultural Policy Note of 2009 which aims at revitalisation of the agricultural sector and creation of wealth in rural areas (Policy Note, 2009).

The Government has developed the *Plan National d'investissement Agricole* (PNIA), i.e. the NAIP 2013-2020 (PNIA, 2013). It intends to stimulate sustained annual agricultural growth of over 6% through: improving agricultural governance, promoting the integration of the gender approach, and strengthening human and institutional capacities; promoting sustainable agricultural sectors, first and foremost the food supply chains and developing agribusiness to improve the incomes of farmers and other operators in the sector; improving food and nutrition security and management of strategic reserves; developing and disseminating research products to users and improving the level of professional competence of different actors; and reducing the vulnerability of the agriculture sector to climate change (Government of Democratic Republic of Congo, 2013).

PNIA does not make reference to the RAP.

### Climate Related Agriculture Policy Elements

The Policy Note (2009) is silent on climate change adaptation in agriculture or CSA. PNIA recognises the importance of addressing climate change impacts in the agriculture sector, with its objective on reducing the vulnerability of agriculture to climate change. Some of the strategic areas contributing to building climate resilience include (a) promoting the installation of composting facilities around major cities (b) management of water for irrigation of vegetable crops (c) promotion of drip irrigation systems (d) protection of riverbanks and (e) restoration of soils and conservation of water.

Further, DRC has prioritised agriculture interventions in the INDC and NAPA, aimed at enhancing climate change adaptation and mitigation in the agriculture sector. Table 3 highlights selected mitigation and adaptation measures in the agriculture sector.

**Table 3: Proposed adaptation and mitigation measures in Democratic Republic of Congo**

<u>Adaptation measures in INDC</u>	<u>Mitigation measures in INDC</u>	<u>NAPA</u>
<ul style="list-style-type: none"> <li>• Sustainable land and soil management</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Development and use of resilient varieties</li> <li>• Crop management</li> <li>• Livestock management</li> <li>• Improved disease/pest control</li> </ul>	Mitigation in the agriculture sector	<ul style="list-style-type: none"> <li>• Strengthening production capacity of agriculture and livestock</li> <li>• Seed multiplication of cassava</li> </ul>

Source (INDC, 2015; NAPA, 2006)

### Climate Related Agricultural Programmes

With support of the World Bank, DRC is currently implementing the Agriculture Rehabilitation and Recovery Support Programme, which has three components: improving agricultural and animal production; marketing infrastructure improvement and capacity building support to the Ministry of Agriculture and Ministry of Rural Development, and project management.

The USAID's Office of Food for Peace intends to award up to three cooperative agreements with the goal of improving food and nutrition security and economic well-being in vulnerable populations by assisting Congolese people to identify and take advantage of transformational opportunities to learn,

mitigate, adapt, invest and thrive. The project will also support implementation of CSA approaches (USAID, 2016).

PNIA has prioritised the implementation of a programme on adaptation to climate change, which is one of the 5 flagship programmes aimed at (a) promoting the installation of composting facilities around major cities (b) management of water for irrigation of vegetable crops (c) promotion of drip irrigation systems (d) protection of riverbanks and (e) restoration of soils and conservation of water.

### **Agricultural Extension System, Strategies and Guidelines**

The Ministry of Agriculture and Rural Development has the responsibility of providing agriculture extension services to farmers. The mandate for extension has been put under the National Agricultural Extension Service (SNV), which was created by ministerial decree in 1989 (Government of Republic of Congo, 2012).

Extension services are also provided by commercial farms, donor funded projects and NGOs (Rugasa, et al., 2012).

The DRC has formulated a policy on agriculture extension which policy focuses on having extension service provision centred on farmers; participatory extension; harmonised extension approaches applied by stakeholders and the policy coordinated by the National Extension Service. The policy is comprehensive as it recommends specific approaches of disseminating technologies and information to different categories of farmers in DRC (Policy Note, 2009).

There is no mention of climate change in the extension policy, nor any mention about how the extension system will build the capacity of farmers to deal with climate change.

### **Opportunities for ACCRA Engagement**

The Government has prioritised the implementation of CCAA/CSA measures in the National Agriculture Investment Plan. There is potentially opportunity to support the government in developing an investment proposal on climate change adaptation in the agriculture sector which is aligned to the RAP, as the country is in the process of developing programmes on climate adaptation in the agriculture sector.

## **Lesotho**

### **Overview of Agriculture**

Agriculture is an important sector as it employs almost 80% of the population and contributes 16% of GDP in 2007 (SADC secretariat, 2014). The sector employs about 60% of the labour force (RAP, 2011). Maize is by far the most popular crop, accounting for some 60% of the cropped area, followed by sorghum (10-20%), wheat (10%) and beans (6%) (FANRPAN, 2014).

The main challenges in the agriculture sector include degraded agricultural lands, high cost of inputs, declining rangeland productivity, inappropriate technologies, and lack of skills, among others (SADC secretariat, 2011).

## **Agricultural Policies and Programmes (with climate change relevance)**

### **Agricultural Policy Framework**

The Government of Lesotho adopted the Food Security Policy and Strategic Guidelines in 2005 to guide the development of the agriculture sector. The main objective of the policy is to improve the *adequacy and stability of access to and utilisation of food at household level* (Government of Lesotho, 2005).

The policy will be achieved through implementation of the following strategic fields of action for food security: employment promotion to ensure sufficient and stable access to food; effective monitoring of the impact of employment policies on food security; promotion of agricultural production; promotion of infrastructure and services to support rural livelihoods; promotion of public transfers and social safety nets; mainstreaming HIV/AIDS within the Food Security Policy to maximise the impact of policy measures on households affected by HIV and AIDS; improved management and stocking of commercial food imports and food aid deliveries, and promotion of improved utilisation of food at household level.

In order to operationalise the Lesotho Food Security Policy Framework, the country developed its National Action Plan for Food Security (NAPFS) 2007-2017 (Government of Lesotho, 2006). The NAPFS comprises five programmes, which are intended to complement each other in achieving the goal and objectives of the Food Security Policy: (1) commercial and household food security focuses on food production at household level and by commercial farmers; (2) natural resource management focuses on the sustainable use and management of natural resources on which food production depends; (3) safety nets and social protection addresses ways to enhance the food security of those who are not able to produce their own food or engage in other economic activity in order to be able to buy food; (4) food supply stability and national availability will ensure that adequate national food stocks are available (combining domestic production and imports) and that food aid delivery systems are in place for use in time of need; and (5) NAPFS support structures sets out arrangements to provide an appropriate institutional framework for achieving food security, to institute effective food security information systems, and to ensure the required monitoring and evaluation (Government of Lesotho, 2006).

The Government of Lesotho signed its CAADP Compact in 2013, outlining the national sector priority pillars. Subsequently, the Ministry of Agriculture developed the NAIP in 2015 but it has not yet been approved.

The policy and strategic agriculture documents do not explicitly make reference to the RAP or other regional policies.

### **Climate Related Agriculture Policy Elements**

The Food Security Policy and Strategic Guidelines of 2005 do not recognise climate change explicitly. However, NAPFS does recognise the effects of climate change and suggests interventions to help buffer farmers against the effects of climate change.

The following interventions under NAPFS are aligned to the component of the RAP addressing climate change: promotion of conservation agriculture-based household food security which includes strengthened small-scale livestock and fish production; expanded promotion of conservation agriculture methods and small-scale irrigation techniques; and promotion of food utilisation

techniques (including preservation) that will maximise the nutritional value of available food; enabling and supporting rural livelihoods through enhancing the capacity of the various support services and framework conditions that are required for enhanced food security such as agricultural research, extension services, animal production and health services, supporting on-farm land management through promoting soil and water conservation on arable land and agroforestry; water harvesting and water conservation will be promoted; communal land resource management which stimulates the rehabilitation of degraded arable and rangeland, combining engineering structures, vegetative practices and improved agronomy; rangeland management focused on the required institutional strengthening of Grazing Associations in their control of Range Management Areas, and water harvesting and management.

The Government of Lesotho has prioritised agriculture in its NAPA and INDC. The INDC clearly identifies the agriculture practices that deliver on both climate change mitigation and adaptation. Table 4 captures the prioritised agriculture interventions in the INDC and NAPA.

**Table 4: proposed Adaptation and mitigation measures in Lesotho**

<b>Adaptation measures in INDC</b>	<b>Mitigation measures in INDC</b>	<b>NAPA</b>
<ul style="list-style-type: none"> <li>• Sustainable land management</li> <li>• Food processing equipment</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Development and use of resilient varieties</li> <li>• Sustainable crop management, conservation agriculture</li> <li>• Livestock production system</li> <li>• Improved breeding of sorghum</li> <li>• Wet land restoration</li> <li>• Early warning system</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock management</li> <li>• Manure management</li> <li>• Intensive crop production</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of improved drought resistant crop varieties</li> <li>• Drip irrigation technology</li> <li>• Improve early warning systems</li> <li>• Improve cooperation between farmers and the private sector</li> <li>• Improve market potential</li> <li>• Improve efficiency of irrigation equipment</li> <li>• Rear well-bred animals to withstand extreme weather</li> <li>• Promotion of rangelands sharing within communities</li> <li>• Improve animal nutrition</li> </ul>

*Source (INDC, 2015; NAPA, 2007)*

### **Climate Related Agricultural Programmes**

FAO is supporting farmers to have access to quality seeds, training and extension. In 2015, FAO conducted training sessions on CSA practices including conservation agriculture, home gardening and nutrition. The training was organised in partnership with the Ministry of Agriculture and Food Security and the Ministry of Education and Training through the leadership of the National Curriculum Development Centre.

GIZ has supported the Orange-Senqu River Commission (ORASECOM) to implement the Orange-Senqu water sources - SPONGE – project which aimed at protecting and conserving the 'Sponges' in the Khubelu catchment through adoption of sustainable wetland management.

## **Agricultural Extension System, Strategies and Guidelines**

The Ministry of Agriculture and Food Security is responsible for providing agricultural extension services to farmers. The Department of Field Services provides extension services at national, district and lower level offices under a decentralised structure. The department works closely with the Department of Agricultural Research and the National University of Lesotho in generating and testing technologies.

The Lesotho National Farmers Union also plays an important role in providing extension services to farmers. The private sector are not actively engaged in advisory services. Some NGOs provide extension services to farmers, though not in a consistent manner. Some of these include Rural Self-Help Development Association, Care Lesotho and Lesotho Council of NGOs (LCN).

In order to enhance the provision of extension services, the Ministry has developed the Lesotho Extension Unified System Strategy whose mission is to *“facilitate and provide need-based knowledge, skills, information and innovation to clients through consultative participatory approaches and to strengthen the capacity of stakeholders in planning, decision-making implementation and change management in a cost-effective decentralised system.”*(Unified Extension System, 2001). The strategy clearly outlines the methodology of engaging the different categories of farmers. It also highlights the extension approaches, the roles of the extension officers and farmers and the specific extension delivery mechanisms.

However, it does not recognise the impact of climate change on agriculture. Thus, the strategy does not contain information on climate-smart technologies, which should be disseminated to farmers.

### **Opportunities for ACCRA Engagement**

The Government of Lesotho is in the process of reviewing its national strategy on agriculture extension, with support from the FAO country office and spearheaded by the Department of Field Services. This is a potential area for ACCRA engagement with the Government so that the revised strategy can be climate proofed.

## **Madagascar**

### **Overview of Agriculture**

Agriculture is an important sector of the economy, accounts for 26.3% of GDP and generates income for 75% of the population (Government of Madagascar, 2015)). About 60% of the agricultural GDP comes from crops, 25% from livestock and fishing and 15% from forestry (RAP, 2011).

Over the past decade, the agricultural sector has been growing at 2.5-2.7% per year (GoM, 2015). The sector consists of three sub-sectors namely crop production, livestock and fisheries. Rice is the main staple crop produced by more than 2 million households (85% of farm households) on 1.2 million hectares (60% of cultivated land) (Government of Madagascar, 2005). Commercial farming is concentrated along the east coast and in the north where coffee, vanilla, cloves and lychee are the main cash crops (Government of Madagascar, 2015).



Some of the challenges for agriculture development in Madagascar include soil degradation, poor marketing infrastructure, high cost of inputs, lack of access to financing and machinery (SADC Secretariat, 2011).

## **Agricultural Policies and Programmes (with climate change relevance)**

### **Agricultural Policy Framework**

The Government of Madagascar has formulated the Policy on Agriculture, Livestock and Fisheries (LPAEP) in 2015. The policy provides vision for the three sub sectors and has prioritised five strategic areas: (a) The rational and sustainable exploitation of the areas of production and exploitation of resources, (b) continued increase in productivity and promotion of competitive production systems, (c) contribution to food and nutritional security and reduction of risks for the most vulnerable, (d) improved access to national markets and the repositioning of Malagasy exports, and (e) strengthening governance and capacity building of actors.

The policy makes no reference to the RAP or other regional strategies.

The Government of Madagascar signed the CAADP Compact in 2013. Subsequently, the Government has developed the *Programme Sectoriel Agriculture Elevage Peche*, and the *Plan National D'investissement Agricole (PSAEP/PNIAEP) 2016-2020*. The main objectives of the PSAEP/PNIAEP are to (a) mobilise all actors with the adoption of the gender approach around the sector objectives while giving importance to the process of (b) decentralisation and devolution through a programme approach procedure; (c) preserve the achievements and revive the sector after the crisis; (d) obtain an agricultural growth rate of 6% per year; (e) optimise the use of available resources to achieve direct results for the population; (f) make available, accessible and competitive agricultural products in domestic and foreign markets; (g) increase the resilience of agricultural production systems to cope with climate change and promote sustainable agricultural practices to mitigate emissions of greenhouse gases.

The PSAEP/PNIAEP has identified 5 priority intervention areas: (1) rational and sustainable exploitation of resources and production areas; (2) sustained improvements in productivity and promoting competitive production systems; (3) contribution to food security and nutritional improvement and risk reduction; (4) improving access to national markets and repositioning export; and (5) improving governance institutions and strengthening the empowerment of actors (Government of Madagascar, 2015).

The agricultural policy documents make no explicit mention of the RAP or other regional policies.

### **Climate Related Agriculture Policy Elements**

The Policy on Agriculture is cognisant of addressing climate change and has prioritised the building of resilience of the vulnerable population; protection against risks and uncertainties (locusts, epidemics, cyclones, etc.) and research on biodiversity.

PSAEP/PNIAEP highlights the importance of addressing CCA and has prioritised the implementation of climate change adaptation activities under its 6<sup>th</sup> programme area. The objective of PSAEP aims at increasing the resilience of agricultural production systems to cope with climate change and promote sustainable agricultural practices to mitigate emissions of greenhouse gases. To attain this objective,

the Ministry of Agriculture has developed a CSA investment plan and is in the process of mobilising resources for its implementation.

Further, PSAEP/PNIAEP promotes applied research adapted to the needs of stakeholders and the market on topics such as non-destructive fishing techniques, genetics, animal nutrition, animal health, CSA, appropriate technologies for adaptation to climate change and the socio-economic aspects.

Agriculture has been prioritised in the INDC and NAPA because the country is highly vulnerable to climate change. Table 5 captures the agriculture interventions prioritised in the INDCs and NAPA.

**Table 5: proposed Adaptation and mitigation measures in Madagascar**

Adaptation measures in INDC	Mitigation measures in INDC	NAPA
<ul style="list-style-type: none"> <li>• Climate-smart agriculture</li> <li>• Early warning system</li> <li>• Watershed management</li> <li>• Sustainable land and soil management</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Development and use of resilient varieties</li> <li>• Crop management-intensive/ improved rice farming system</li> </ul>	<ul style="list-style-type: none"> <li>• Agroforestry</li> <li>• Conservation agriculture</li> <li>• System of Rice Intensification</li> <li>• Arboriculture</li> <li>• Climate-smart agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Support for intensification of crop and livestock production, particularly through acquisition of agricultural equipment, input distribution, development of income generating activities in regional growth areas, support for promotion of vaccination campaigns</li> <li>• Implementation of lightweight construction and/or strengthening of decentralised Weather Service</li> <li>• Establishment of infrastructure such as dams gradually as the sea level rises</li> </ul>

Source (INDC, 2015; NAPA, 2006)

### Climate Related Agricultural Programmes

The Ministry of Agriculture has been implementing the *Programme National De Vulgarisation Agricole* (PNVA), which supports the adoption of System of Rice Intensification (SRI) as an approach for enhancing rice productivity.

*Groupement Semis Direct Madagascar* (GSDM) has been implementing a pilot project on scaling up CSA in farming systems to mitigate climate change and to improve food security in the mid-west and southeast of Madagascar. The main objective is to support scaling up of CSA in Madagascar.

The Government has been implementing the South East High Plateau Watershed and Irrigated Perimeter Project, which has been funded by the French Agency for Development (AFD). This project supports irrigation development, conservation agriculture and watershed management (FANRPAN, 2014).

### Agricultural Extension System, Strategies and Guidelines

The Ministry of Agriculture has the responsibility of providing public extension services to farmers. The Government is cognisant of the role which agricultural extension plays in agricultural development. The strategy adopted for supporting agriculture extension is the setting up of the Agricultural Services Center in all rural districts of Madagascar, which is managed by local stakeholders

in the district to serve as a technical tool for the development of agricultural services. The centres are aimed at developing a sustainable mechanism for advising farmers. They provide agriculture inputs (fertilisers, seeds, phytosanitary products, animal feed, etc.), technical support, including training, technical and economic information and the dissemination of new techniques, and station extension officers in each rural district (107 districts) (Minagri, 2016).

The *Fiompiana Fambolena Malagasy Norveziana* (FIFAMANOR), a national centre for research and extension related to agriculture and livestock production, also plays an important role in research and extension in Madagascar. NGOs such as Catholic Relief Services and *Groupement Semi-direct de Madagascar* (GSDM), *Forum Du Conseil Agricole* (FCA) also provide extension services.

The Government has developed an extension strategy but it was not considered for this analysis, since it was not available in the public domain.

### **Opportunities for ACCRA Engagement**

The Government is in the process of developing programmes within the framework of the PSAEP/PNIAEP. ACCRA can engage the Ministry of Agriculture so that the programmes being developed are in line with the RAP climate change relevant components.

## **Malawi**

### **Overview of Agriculture**

Agriculture is the backbone of the economy in Malawi, as the sector accounts for 30.6% of GDP and employs 80% of the population (RAP, 2011). Maize is the main staple crop produced by 80% of the farmers, while tobacco is the main export crop. The other crops produced include rice, sorghum, millet, groundnuts, pulses and soybean.

The main challenges for the agriculture sector include lack of access to finance, effects of climate change, poor agriculture marketing infrastructure, diseases and parasites, declining land holdings, reduced public sector funding and poor management practices (SADC Secretariat, 2011).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Ministry of Agriculture and Food Security has developed the National Agricultural Policy draft of 2011 (Government of Malawi, 2011). The policy aims at facilitating the creation of a conducive and supportive policy environment for effective development of the agricultural sector throughout all stages of the value chain; strengthening the capacity of stakeholders in the sector in provision of agricultural services; enhancing the coordination and collaboration amongst relevant stakeholders operating in different sub-sectors; and providing clear strategic policy direction to all stakeholders involved in sector issues along the value chain stages.

Further, the policy states that it is aligned to regional and international policies on agriculture, climate change and environmental management issues, notably CAADP. It does not explicitly mention any SADC regional policies, such as the RAP.

The Ministry of Agriculture of Malawi is implementing the Agriculture Sector Wide Approach (ASWAp) 2011-2015, which is anchored on the National Agricultural Policy (Government of Malawi, 2011). ASWAp is aligned to the CAADP Compact, which the Government of Malawi has signed in 2010 as an integral part of Malawi’s efforts to promote food security and economic development.

ASWAp is the priority investment plan for the agricultural sector and aims to (i) increase agricultural productivity, contributing to 6% growth annually in the agricultural sector, (ii) improve food security, (iii) diversify food production as well as improving nutrition at household level, and (iv) increase agricultural incomes of the rural people (Government of Malawi, 2012). It has three priority areas, which are (a) Food security and risk management, which focuses on increasing maize productivity, reducing post-harvest losses, diversifying food production, managing risks associated with food reserves at national level; (b) Commercial agriculture, agro-processing and market development, which focuses on promoting commercial agriculture production and value addition involving smallholder farmers; and (c) Sustainable agriculture land and water management, focusing on sustainable land and water utilisation, conservation farming, afforestation, protection of fragile land and catchment areas, and rehabilitation of degraded agricultural land.

ASWAp does not make explicit reference to the RAP or other regional policies.

### Climate Related Agriculture Policy Elements

The National Agricultural Policy recognises the importance of addressing the challenges of climate change in the agriculture sector. It states that the link between climate change and agricultural production requires that measures are taken to reduce the impact of climate change and help farmers to adapt to climate change (Government of Malawi, 2011).

The Food Security and Risk Management and the Sustainable Agriculture, Land and Water Management components of the ASWAp recognise and prioritise the importance of climate change risks in the agriculture sector. Specifically, ASWAp is focusing on conservation farming, afforestation, protection of fragile land and catchment areas, and rehabilitation of degraded agricultural land and expanding drought resistant cropping, which will serve as a safeguard against the effects of climate change and drought, and as viable raw materials for industrial use and import substitution. Activities on water will focus on water use efficiency and expanding the area under irrigation through the Green Belt Initiative (GBI) (Government of Malawi, 2011).

The INDC and NAPA have identified and prioritised some activities on agriculture aimed at building the resilience of the sector. Table 6 shows the different agriculture practices that can deliver mitigation and adaptation benefits.

**Table 6: Proposed adaptation and mitigation measures in Malawi**

<b>Adaptation measures in INDC</b>	<b>Mitigation measures in INDC</b>	<b>NAPA</b>
<ul style="list-style-type: none"> <li>• Rainwater harvesting and improved irrigation</li> <li>• Sustainable land/ and soil management</li> </ul>	<ul style="list-style-type: none"> <li>• Climate resilient agronomical practices</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping vulnerable areas and identifying drought tolerant crops (cassava, millet, sweet potatoes) and animals,</li> <li>• Multiplying and distributing appropriate crop varieties and animal breeds,</li> </ul>

<ul style="list-style-type: none"> <li>• Development and use of resilient varieties</li> <li>• Agro forestry and conservation agriculture</li> <li>• Agronomic management</li> <li>• Aquaculture</li> </ul>	<ul style="list-style-type: none"> <li>• Extension materials on resilient agronomic practices</li> <li>• Agriculture NAMA</li> </ul>	<ul style="list-style-type: none"> <li>• Training farmers and field extension staff on agricultural husbandry practices,</li> <li>• Disseminating extension messages on crops varieties and animal breeds,</li> <li>• Irrigation farming</li> <li>• Training farmers on storage, utilisation and value-adding to crops and animals products</li> </ul>
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Source (INDC, 2015; NAPA, 2006)

### **Climate Related Agricultural Programmes**

Within the framework of ASWAp, the Government accessed USD 39.6 million from the Global Agriculture and Food Security Programme (GAFSP) for a programme funded by the World Bank focusing on sustainable land and water management, crop diversification and value chain development and institutional strengthening and capacity building. This programme specifically intends to:

Increase the land area available for all season agriculture by the development of water resources (irrigation, drainage, etc.) for men and women smallholder farmers;

Promote crop diversification and value chain development of selected crops for improved food and nutrition security, wealth creation and rural employment especially for women and youth;

Expand drought resistant cropping which will serve as a safeguard against the effect of climate change and drought as well as serve as viable raw materials for industrial use and import substitution and,

Enhance the capacity of both the public and private sectors to improve service delivery functions to smallholder farmers and other key stakeholders in agricultural development (Government of Malawi, 2011).

The Vuna Program is also working with the Government of Malawi on developing the climate smart agriculture strategy and finalisation of the Climate Smart Agriculture manual.

### **Agricultural Extension System, Strategies and Guidelines**

The Department of Agricultural Extension Services (DAES) of the Ministry of Agriculture is responsible for the provision of agricultural extension services and has developed a pluralistic and decentralised system of providing services at district level.

The Farmers Union of Malawi (FUM) and National Smallholder Farmers' Association of Malawi (NASFAM) are the main national farmers' organisations, which are providing extension services. In Malawi there are a number of NGOs, such as Total Land Care, Africare and CARE International, who are also providing extension services to farmers. The private sector are also an important player in the provision of services. Most private sector organisations provide extension for specific value chains.

The Government has developed the District Agricultural Extension Services System (DAESS) Implementation Guide which aims to empower farmers to demand high quality services (Government of Malawi, 2006). The guide is a new approach to the provision of agricultural extension services at decentralised levels. It provides information and key steps that will enable stakeholders in extension

delivery (government, private sector, NGOs, etc.) to facilitate the implementation of the DAESS. The guide clearly outlines mechanisms of reaching the farmers and helping them to access services. However, the guide is silent on technologies and potential climate change adaptation options to be disseminated to farmers.

### **Opportunities (or Barriers) for ACCRA Engagement**

The Government of Malawi has commenced the review of ASWAp. This provides a good opportunity of ensuring the RAP content is taken on board in the next phase of ASWAp implementation, through participation in the review process.

## **Mauritius**

### **Overview of Agriculture**

The agricultural sector contributed 3.5% of GDP in 2015 (Government of Mauritius, 2016). The farming system is made up of the sugar and non-sugar industries. The sugar sector includes cane plantations and sugar manufacturing, while the non-sugar sector includes tea, flowers, fishing, food crops and animal production (SADC Secretariat, 2011). Sugar is the main agricultural commodity being produced.

Currently farmers in Mauritius are using 60,000 hectares of land under cultivation, of which more than 80% is dedicated to sugarcane cultivation and the remaining land is devoted to food crops and tea cultivation (Government of Malawi, 2016). The crop sector involves primarily smallholders cultivating 0.25 to 2.5 hectares; 95% of vegetables, crops and fruits are produced by smallholders (SADC Secretariat, 2011).

The main challenges of the agriculture sector include high costs of production, inputs and technologies, limited access to land, labour, capital and agricultural machinery, lack of organised market structures and market intelligence, an ageing farming community and labour scarcity (SADC Secretariat, 2011).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Ministry of Agriculture has developed the Strategic Plan (2016 - 2020) for the Food Crop, Livestock and Forestry Sectors (SPCLF) of 2016. The overall goal is to raise the national food security level by maintaining self-sufficiency in those agricultural products where it is possible and by generating a significant, concomitant increase in local production of others (SPCLF, 2016).

The specific objectives of SPCLF are: to improve the level of food security in the country; to provide safe and quality food for the local population and for export; to improve the contribution of agriculture to national economic and social development; to promote the sustainable management of land, water and other natural resources; to build capacity for enabling farmers to face climate change and move on to CSA; to implement institutional reforms for service delivery and to empower farmers towards entrepreneurship and professionalism.

The SPCLF has prioritised the sensitisation of the public on the importance of consuming bio-food, and valuing the difference; development of bio-production protocols; establishment of dedicated bio-

farming zones, and the relevant conditions to be imposed on land use and crop management; training of farmers in bio-food production; and introduction of a bio-farming certificate/label to encourage bio-food production.

The Plan does not make any reference to the RAP, but refers to the SADC Protocol on Forests.

### Climate Related Agriculture Policy Elements

The SPCLF recognises that agriculture is highly vulnerable to climate extremes and climate variability and proposes the adoption of CSA (SPCLF, 2016). It proposes interventions such as technology exchange, capacity building and effective information and communication management; support to agro-entrepreneurs through training to identify potential agri-business and its feasibility; educating farmers about climate change and coping strategies; establishing an Agricultural Risk Management Framework to increase the resilience of farmers to address their vulnerability to climate change and capacity building for adaptation to climate change (SPCLF, 2016). It also prioritises CSA trainings.

The INDC has prioritised agriculture under both mitigation and adaptation. Table 7 captures the proposed agriculture practices in INDC.

**Table 7: Proposed adaptation and mitigation measures in Mauritius**

Adaptation measures in INDC	Mitigation measures in INDC	NAP
<ul style="list-style-type: none"> <li>• Rainwater harvesting and improved irrigation</li> <li>• Integrated pest and disease management</li> <li>• Climate-smart fisheries</li> <li>• To promote climate smart agricultural practices</li> </ul>	<ul style="list-style-type: none"> <li>• Climate-smart agriculture including bio-farming</li> <li>• Smart use of marine resources</li> </ul>	<p>No NAP</p> <p>INDC</p>

Source (INDC, 2015)

### Climate Related Agricultural Programmes

There was no information available on specific programmes under implementation on CSA.

### Agricultural Extension System, Strategies and Guidelines

The Ministry of Agro Industry and Food Security is responsible for the provision of public agriculture extension services. The Ministry set up the Food and Agricultural Research and Extension Institute (FAREI) in 2014, a parastatal, which operates under the Ministry to conduct research in non-sugar crops, livestock, and forestry and to provide extension services to farmers in Mauritius, including its outer islands (FAREI, 2016).

The Ministry has no standalone policy and strategy on agricultural extension. It has developed its Strategic Plan for the Food Crop, Livestock and Forestry Sectors (2016 - 2020), which indicates that FAREI's extension services, model farms and training schools are deployed to make way for customised advisory services, which suit innovative and business-oriented farmers.

FAREI has prioritised training on climate-smart practices (Strategic Plan, 2016). Thus the extension approaches have mainstreamed climate change considerations in Mauritius. Although there are no specific programmes under implementation on CSA, a range of CSA practices are currently

being developed and promoted, such as Integrated Plant Nutrition System (IPNS), Integrated Pest and Disease Management, sheltered farming, rain water harvesting, micro-irrigation techniques, screening of crop varieties etc. Sensitization campaigns are also organized regularly among the farming community, more specifically on adaptation to limit crop damages.

### **Opportunities for ACCRA Engagement**

The SPCLF was only approved in 2016 and the country is in the process of formulating some of the programmes. In this regard, it might be an opportune time to engage with the Ministry of Agriculture so that future programmes incorporate the climate change elements of the RAP.

## **Mozambique**

### **Overview of Agriculture**

The agriculture sector contributes about 25% of GDP and employs 81% of the population (Government of Mozambique, 2011). About 99% of farmers in Mozambique are smallholders who are engaged in the production of food crops and rearing livestock. The main food crops include maize, cassava, sorghum, sweet potatoes, rice and groundnuts. Sunflower and tobacco are the main cash crops grown by smallholders.

Despite the sector being key to economic development of the country, it is faced with the challenge of low production and productivity, limited infrastructure and services for accessing markets, inadequate use of natural resources, limited institutional capacity and the need for more coherent policies (Government of Mozambique, 2010).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Government of Mozambique is currently implementing its Agricultural Policy and Implementation Strategy (PAEI) of 1996. The PAEI aims to enhance (1) Access to land and planning and developing its use; (2) Food production for self-sufficiency and food security; (2) Production for export contributing to the balance of payments (3) Restructuring the agro-business sector; (3) Development of efficient professional training, research and extension services; (4) Plant and animal protection; and (5) Infrastructure development (Government of Mozambique, 2010).

Within the guidance of PAEI, the Ministry of Agriculture developed the Strategic Plan for the Development of Agriculture Sector (PEDSA) 2011-2020 which is the guiding framework for promoting agriculture development with the target to achieve an average annual agriculture growth of 7%. PEDSA aims to contribute to food security and income of agriculture producers in a sustainable and competitive manner ensuring social and gender equity.

The CAADP Compact, which the country signed in 2011, is implemented through PEDSA.

The PEDSA has the following four pillars of intervention: (I) Increase productivity and production, competitiveness and its contribution to food security and nutrition; (II) Improve guiding frameworks



and services for more market access; (III) Sustainable use of water, forests, fauna and land resources; and (IV) Strengthen institutions and organisations for agriculture development.

PEDSA recognises that productivity increase is crucial to agricultural sector growth and competitiveness through (i) increased use of improved technologies, (ii) availability and better management of water resources, (iii) prevention and fight against diseases and plagues, and, (iv) development of improved varieties that ensure greater crop yields with high nutrition value over other agriculture products (Government of Mozambique, 2011).

There is no direct mention of the RAP or other regional policies.

### Climate Related Agriculture Policy Elements

PEDSA recognises the importance of addressing climate change effects in agriculture and strategies for building resilience to climate change have been proposed. PEDSA has identified strategies under Strategic Objective 3: *Land, Water, Forest and Wildlife Resources used sustainably* and Result Area 3.7: *Response capacity to the effects of climate change improved*, which are aimed at building resilience of the agriculture sector to climate change. The strategies are: increase the production and dissemination of agro-climatic information; strengthen early warning systems; identify and map the areas prone to natural disasters and climate change and design agricultural development programmes for these areas; develop and implement a strategy for mitigating the risks associated with natural disasters and climate change, adapting production systems to diversify sources of income; strengthen the capacity of agricultural producers to adapt to drought and climate change through training on alternative options; promote conservation agriculture, particularly in arid and semi-arid areas; and increase research into early maturing and drought resistant varieties of food and cash crops (Government of Mozambique, 2010).

The Government of Mozambique has identified only climate change adaptation measures in agriculture in its INDC and NAPA. The INDC is silent on mitigation measures in agriculture. Table 8 shows the agriculture practices prioritised in the INDC and NAPA.

**Table 8: Proposed adaptation and mitigation measures in Mozambique**

<u>Adaptation measures in INDC</u>	<u>Mitigation measures in INDC</u>	<u>NAPA</u>
<ul style="list-style-type: none"> <li>• Early warning system</li> <li>• Sustainable land and soil management</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Development and use of resilient varieties</li> </ul>	No mention	<ul style="list-style-type: none"> <li>• Encourage the use of conservation agriculture</li> <li>• Promote associations among farmers, cattle and goat breeders, and fishermen</li> <li>• Build infrastructure for the collection and conservation of rainwater for subsequent use in the drought season</li> <li>• Drill wells or water boreholes</li> <li>• Install small scale sustainable irrigation systems and explore use of renewable energy to power agriculture</li> <li>• Build and/or rehabilitate tanks and administer vaccinations</li> <li>• Encourage applied research on drought and disease resistant crops, and the use of crops that have short growing cycles</li> </ul>

<ul style="list-style-type: none"> <li>• Crop management</li> <li>• Livestock management</li> <li>• Climate change resilient technologies</li> </ul>		<ul style="list-style-type: none"> <li>• Disseminate and encourage use of drought tolerant crops</li> <li>• Promote certification of seed sold in agricultural fairs</li> <li>• Encourage local production of seeds</li> <li>• Promote agricultural fairs in vulnerable areas</li> <li>• Promote the use of hays for cattle feed</li> </ul>
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Source (INDC, 2015, NAPA, 2007)

### Climate Related Agricultural Programmes

CLUSA has been implementing an agriculture extension programme in Mozambique whose main goal is to improve food security and farmer incomes through the adoption of conservation agriculture. The programme aims to train as many as 36,000 farmers over a five-year period. Vuna has also commenced some CSA programmes in Mozambique aimed at upscaling proven CSA technologies.

### Agricultural Extension System, Strategies and Guidelines

The public sector extension service is provided by the Ministry of Agriculture (MINAG) through its National Directorate for Agricultural Extension (DNEA). The Joint Venture Companies (JVCs), for example, carry out purely commodity-based extension (e.g. for cotton, tobacco and cashew). They provide input such as seeds, fertilisers, herbicides and pesticides, and technical advice to farmers (GFRAS, 2016).

The farmer organisations such as the National Farmers Union (UNAC) and the General Union of Cooperatives (UGC) provide extension services to their members. The most prominent NGOs providing agricultural services include World Vision, CLUSA and ACIDI-VOCA.

The Ministry of Agriculture has been implementing the Extension Master Plan (2007-2016) (EMP, 2007). It aims to contribute to the attainment of the objective of improved food security, economic growth and poverty reduction, especially for male and female subsistence farmers, including female-headed and disadvantaged households, by increasing agricultural productivity and production through a steady uplift in production efficiency and the provision of new technology and institutional innovations, while promoting participation and sense of ownership among producers.

The Extension Master Plan highlights that extension services will be delivered through improving the capacity to implement extension programmes within a pluralistic and participatory framework, increasing the technical and managerial capacity of producers in the planning, monitoring and evaluation process and in service provision and providing extension services at provincial and district levels for the promotion of agricultural productivity and sustainable use of resources.

The strategy is comprehensive and provides approaches of supporting farmers to access information and technologies. However, the strategy does not address climate change or CSA directly.

### Opportunities) for ACCRA Engagement

There is room for supporting the Government to develop agricultural interventions aimed at achieving result area 3.7 of PEDSA. The Extension Master Plan implementation phase was 2007-2016, however there was no information on the status of development of a new strategy. This might be an opportune

time to engage the Government so that CCAA measures can be mainstreamed into the new follow up strategy for agriculture sector.

## **Namibia**

### **Overview of Agriculture**

Namibia is generally an arid country with 22% of its landmass classified as desert, with mean annual rainfall of less than 100mm (SADC Secretariat, 2011). The agriculture sector is one of the strategic economic sectors as it provides employment to 27.4 % of population and accounts for 3.7 % of GDP in 2014 (Government of Namibia, 2015).

The main farming system is cereal and livestock production. The main crops grown include maize, sorghum, legumes, pearl millet and grapes. The country is affected by climate variability which has been a major challenge in enhancing the sectors performance in the economy.

A major factor in agriculture's relatively low performance has been the effect of droughts and floods on crops and livestock as a result of climate change (Government of Namibia, 2015).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

In 2015, the Government of Namibia in its Vision 2030 adopted the Namibian Agricultural Policy (Government of Namibia, 2015). The mission of the policy is *to promote, regulate, and protect the sustainable development of the agriculture sector through stakeholder participation for the purpose of improving the socio-economic situation of the Namibian people.*

The Namibian Agricultural Policy outlines clear strategies for enhancing crop and livestock production as well as development of agro-based industries. It has prioritised strengthening the sustainable development of Namibia's crop subsector; sustainable development of the livestock subsector; promotion of plant and animal health; policies on livestock production; sustainable development of Namibia's agro-industry; sustainable development of Namibia's domestic market; sustainable research and development in agriculture and agro-processing; training and capacity building in agriculture production; marketing and agro-industry; effective and efficient management and dissemination of agricultural information; development of a self-sustainable agro-finance market; development of a vibrant co-operative sector and supporting the sustainable development of extension services.

The Policy makes reference to the Maputo Declaration, the Malabo Declaration, WTO and the SADC RAP. However, it is not clear how the policy will implement the elements of the RAP.

The Ministry of Agriculture is in the process of formulating its NAIP.

The Ministry has developed a national CSA programme 2015-2025 (Government of Namibia, 2015). The CSA programme has the following priority areas: improving agriculture productivity and farmers' incomes, building resilience and associated mitigation co-benefits; value chain integration, research for development and innovations, improving and sustaining agricultural advisory services and improved institutional coordination for effective roll-out of the CSA Programme.

### Climate Related Agriculture Policy Elements

The Namibian Agricultural Policy is cognisant of the effects of climate change on agricultural productivity and highlights that the policy will take on board national and international protocols and conventions dealing with climate change adaptation and will promote measures that ensure that agricultural production adapts to a changing environment (Government of Namibia, 2015).

The policy notes that the effect of droughts and floods on crops and livestock has contributed to agriculture's relatively low performance. It has the following elements which are aimed at building the resilience of the sector to climate change and focuses on: expanding the Green Scheme Programme under which it will develop irrigable land along perennial rivers and large dams and other sustainable water sources; implementing the conservation agriculture programme; supporting research for soil fertility enhancement technologies; enforcing soil conservation through implementation of the Soil Conservation Legislation; developing and implementing an agro-forestry promotion programme; establishing irrigation schemes targeting fodder production (Government of Namibia, 2015).

The INDC has identified agricultural practices for achieving climate change adaptation and mitigation contributions. Table 9 contains information on the prioritised agriculture activities.

**Table 9: Proposed adaptation and mitigation measures in Namibia**

Adaptation measures in INDC	Mitigation measures in INDC	NAP
<ul style="list-style-type: none"><li>• Sustainable land/ and soil management</li><li>• Rainwater harvesting and improved irrigation</li><li>• Development and use of resilient varieties</li><li>• Crop management</li><li>• Livestock management</li><li>• Improved disease/pest control</li></ul>	<ul style="list-style-type: none"><li>• Livestock management</li><li>• Manure management</li><li>• Reducing chemical fertiliser usage</li><li>• Agroforestry</li><li>• Grass land management</li><li>• Conservation agriculture</li></ul>	No NAP

Source (INDC, 2015)

### Climate Related Agricultural Programmes

USAID is funding a project which is being implemented by CLUSA working with the Namibian Ministry of Agriculture, Water, and Forestry (MAWF) to help farmers cope with the country's difficult climatic conditions by promoting conservation agriculture.

GIZ is working with the Namibia's Ministry of Agriculture, Water and Forestry on adaptation of agriculture to climate change in Northern Namibia. The main objective of this project is to support small-scale farmers in Northern Namibia to apply farming practices that are adapted to the impacts of climate change. The project will be supporting the farmers to practice conservation agriculture.

### Agricultural Extension System, Strategies and Guidelines

The Ministry of Agriculture, Water and Forestry (MAWF) provides extension services to farmers. It created the Directorate of Extension and Engineering Services (DEES) to provide agricultural extension services to farmers, agro-based industries and other stakeholders in the form of information communication, advisory and training services (GFRAS, 2017).

The public extension system is complimented by the services provided by the Namibia National Farmers Union (NNFU) and NGOs. Some of the NGOs working in the agricultural sector include the Desert Research Foundation of Namibia (DRFN), Namibia National Women's Organisation (NANAWO), Creative Entrepreneurs Solutions (CES), Self-Help Groups (SHG), AgriFutura, Women Action for Development (WAD) and Namibia Development Cooperation (NDC) (GFRAS, 2017).

The policy on agriculture extension is part of the Namibian Agricultural Policy of 2015. The Government has adopted an extension policy, which aims to provide agriculture *extension services in the form of communication, advisory and training to all producers; provide agricultural services in form of advice, information dissemination and training; identify technologies and training needs in all aspects of agriculture production; promote the development, adaptation and adoption of appropriate crop and livestock technologies; to facilitate public private partnerships in extension services and to capacitate extension staff with necessary skills and continued Professional Development Program (CPD)* (Government of Namibia, 2015).

However the policy is silent on how the specific policy interventions on agriculture extension will ensure that farmers are supported on CCAA/CSA.

### **Opportunities for ACCRA Engagement**

The Agriculture policy has prioritised Climate Change measures and the country is in the process of developing programs aimed at operationalizing the agriculture policy. In this regard, there is a window of opportunity for engaging the Government in the mainstreaming of CC and the implementation of the CSA programme.

## **Seychelles**

### **Overview of Agriculture**

Agriculture, especially crop production, is an important sector despite it not being the major driver of the economy. Fisheries are important economic activities, accounting for 5% of GDP, 7% of employment and 35% of total exports (SNAIP, 2015). Total arable land in Seychelles is estimated at 500 hectares of which 50% is exploited for agriculture (Government of Seychelles, 2011).

The major farming systems are (i) registered commercial farmers on average sized farm of 0.5 hectares either growing vegetables, rearing livestock or carrying out mixed farming; and (ii) home gardeners that produce for home consumption, barter or local sale (SADC, 2011).

The main agricultural commodities include fruits, vegetables and livestock products (pork and poultry). However, Seychelles imports 70% of its food needs thereby making it vulnerable to external shocks (Government of Seychelles, 2015).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Government of Seychelles developed the National Food and Nutrition Security Policy (NFNSP) in 2013 which provides the overarching framework and policy goals within which specific goals and objectives of agriculture development will be pursued (Government of Seychelles, 2013). It aims at:

(i) Ensuring that programme and investment interventions are consistent and supportive of short and long term agricultural development and growth priorities, goals and objectives; (ii) Ensuring coordination, coherence and comprehensiveness in strategies and programmes on food security and nutrition; (iii) Strengthening resilience and capability within Seychelles’ internal systems to anticipate and respond to internal and external shocks and changes in the food systems, including weather and climate change extremes, price volatility, etc.; and (iv) Strengthening accountability in food security and nutrition support systems including inclusive decision making, multi-sectoral approaches and reinforcement of collective responsibility among the various players and stakeholders (Government of Seychelles, 2013).

Under the guidance of the NFNSP, Seychelles has developed its NAIP, which will be implemented under the framework of CAADP. Through implementing the NAIP, Seychelles aims to produce enough food to complement imports and ensure availability of food to meet the country’s food security and nutrition needs and reduce risks and vulnerability in the event of local and/or external factors which may limit or hinder access to global food markets (Government of Seychelles, 2013).

The following are NAIP’s specific objectives: Factors of production (land and water) secured and sustainably used; Factors of productivity (land, labour, capital) in forestry, crops, livestock and fisheries sustainably enhanced; Commodity-specific value chains developed and functioning (including agro-processing and local market linkages); Fisheries and aquaculture revenue is increased while preserving the sustainability of the resource base; Facilitate and sustain a favourable legal, policy and institutional environment to enable a private sector driven local agricultural system, providing viable and predictable needs for business as well as social benefits for the public; Appropriate knowledge and technological support system strengthened and supporting enhanced agricultural transformation and performance; and institutions in the sector are strengthened; protection and sustainable use of agricultural land and water; Productivity, commercialisation and diversification of crops and livestock; Sustainable fisheries management and aquaculture development; Food security and nutrition and; human and institutional capacity development (Government of Seychelles,2015).

The NAIP does not make explicit reference to the RAP or other regional policies.

### Climate Related Agriculture Policy Elements

The NAIP has prioritised promotion of good land husbandry practices for soil conservation and improving soil fertility, as well as CSA. It mentions that CSA interventions will be implemented under Programme 1: *Protection and sustainable use of agricultural land and water* (Government of Seychelles, 2015). NAIP is cognisant of climate change effects on the agriculture sector and has incorporated climate change resilience in all the agriculture interventions proposed.

The Government of Seychelles has prioritised adaptation to climate change in agriculture. Table 10 shows the prioritised adaptation contributions in the agriculture sector.

**Table 10: Proposed adaptation and mitigation measures in Seychelles**

Adaptation measures in INDC	Mitigation measures in INDC	NAP
<ul style="list-style-type: none"> <li>Water security for Agriculture</li> <li>Innovative technologies across agriculture value chains</li> </ul>	No mention	No NAP

- |                |  |  |
|----------------|--|--|
| • Blue economy |  |  |
|----------------|--|--|

Source (INDC, 2015)

### **Climate Related Agricultural Programmes**

Seychelles is currently implementing the following programmes: GEF/UNDP is supporting the Government to implement the Ecosystem Based Adaptation to Climate Change in Seychelles project, which is mainstreaming biodiversity management into agriculture production systems and mainstreaming prevention and control measures for invasive alien species.

FAO and the Government of Seychelles are implementing the *Development of Appropriate Agro-forestry Systems in Seychelles Project* which is supporting adoption of agro-forestry, building institutional capacity of the sector, and soil and water management.

### **Agricultural Extension System, Strategies and Guidelines**

The policy on agriculture extension is included in the NFNSP whose goal is to guarantee the right to safe, healthy and adequate food at all times and to satisfy the nutritional needs for optimal health for all persons living in Seychelles (NFNSP, 2013). The policy prioritises the modernisation of the national agricultural extension services. Further the policy aims at *enhancing human capacity development at Seychelles Agricultural Agency (SAA), revitalising the extension services and providing opportunities for young Seychellois to study climate-smart agriculture technologies and aligning the curriculum of the school of agriculture to meet the demands on the labour market* (NFNSP, 2013).

The Seychelles Agricultural Agency is the only Government institution providing advisory services to farmers through individual farm units, farmers’ meetings, demonstrations and field days (RAP, 2012).

Due to the climatic challenges, which Seychelles has been encountering over the years, the Government has climate proofed all its development strategies and policies in the agriculture sector. The strategy as highlighted in the NFNSP is that of promoting CSA technologies (NFNSP, 2013).

### **Opportunities for ACCRA Engagement**

Seychelles has mainstreamed climate change concerns. There might only be an opportunity for supporting the Government in the implementation of the CSA interventions.

## **South Africa**

### **Overview of Agriculture**

The agriculture, forestry and fisheries sectors play an important role in the economy of South Africa. Agriculture contributes about 3% to the country’s GDP and employs about 7% of the labour force (Government of South Africa, 2016). The agriculture sector is mainly composed of the commercial and smallholder farming enterprises. In 2015, food production consisted of grains (51.6%), fruit and vegetables (50.8%), livestock farming (34.3%) and poultry (33.7%) (Government of South Africa, 2015).

The agriculture, forestry and fisheries sectors are crucial to South Africa’s socio-economic development. However, the future of these sectors depends on addressing challenges of climate change, population growth, skills shortages, changes in consumer needs and shifts in the global

economy and related markets, rising input costs, an uneven international trade environment, lack of developmental infrastructure (rail, harbour, electricity), a rapidly evolving policy and production environment and climate change ( Government of South Africa, 2016).

## **Agricultural Policies and Programmes (with climate change relevance)**

### **Agricultural Policy Framework**

In 2014, the Government developed the Agriculture Policy Action Plan (Government of South Africa, 2014) to guide the implementation of practical agriculture interventions as guided by the National Development Plan (Government of South Africa, 2011).

The National Development Plan intends to achieve its agriculture objective through implementation of the following activities: expanding irrigated agriculture through the better use of existing water resources and developing new water schemes; better land use in communal areas could improve the livelihoods of at least 370,000 people and create around 600,000 potential jobs in communal areas; select and support commercial agriculture sectors and regions that have the highest potential for growth and employment—300,000 potential jobs in commercial agriculture.

APAP's vision is the creation of an equitable, productive, competitive, profitable and sustainable agriculture, forestry and fisheries sector for the benefit of all South Africans (Government of South Africa, 2014). It has prioritised support for job creation through implementation of CSA, agricultural business development and support, biosecurity, research and Innovation and land reform.

Further, the Government has formulated the South African Agricultural Production Strategy (SAAPS) 2011-2025. SAAPS goals are: to increase the entry levels of smallholder farmers into commercial agriculture; to improve the national agricultural economic output, national food safety and security, through a qualitative and quantitative improvement of South Africa's agricultural productivity, productive efficiency, trade and regulatory environment, and the spatial management of information and knowledge systems for all commodity groups; to improve agricultural support services, the regulatory framework, and the competitive advantage for commodity sectors, according to their needs and requirements as stated in their respective commodity strategies; to stimulate rural economic growth and development, by stimulating spatial economic planning and implementation and further serving as an incentive for investment in rural areas.

### **Climate Related Agriculture Policy Elements**

The Government of South Africa is cognisant of the fact that climate change will result in food and energy insecurity, notably in the rural areas. The Government developed the Climate Change Sector Plan for Agriculture, Forestry and Fisheries in 2012. The Climate Change Sector Plan aims to ensure compliance of the agriculture sector with the international obligation on climate change, to minimise or reduce the negative impacts and risks associated with climate change in order to increase and improve feed, fibre and energy production, to promote climate change programmes that will build capacity, raise awareness and improve education and training in agriculture, forestry and fisheries (Government of South Africa, 2012).

Under the guidance of the Climate Change Sector Plan, the Department of Agriculture, Forestry and Fisheries (DAFF) has completed development of the Agricultural Disaster Risk-Management Plan



(SDRMP, 2012) and the Agricultural Drought-Management Plan (DMP, 2005) for guiding efforts aimed at building resilience to climatic challenges.

The DAFF Strategic Plan 2013/14 -2018 recognises the effects of climate change on agriculture. It proposes to develop and submit climate change adaptation and mitigation programmes through monitoring and evaluating the sensitivity of crop suitability in South Africa to climate change and mitigation; and adaptation to climate variability and change (e.g. biogas production, integrated crop-livestock systems).(Government of South Africa, 2013).

SAAPS promotes monitoring and mitigating the national food security impact of climate change, market fluctuations and trade for purposes of ensuring national food security. Further, APAP prioritises adoption of CSA and specific activities include creation of a farmer incentive programme for the implementation of CSA best practices and climate-smart strategies and development of CSA capacity building programmes for extension officers and for large-scale commercial farmers, including establishing on-farm demonstrations in all 9 provinces.

The INDC of South Africa has prioritised agriculture as one of the sectors that can deliver on adaptation contributions. Table 11 captures the agriculture contributions in the INDC.

**Table 11: Proposed adaptation and mitigation measures in South Africa**

Adaptation measures in INDC	Mitigation measures in INDC	NAPA
<ul style="list-style-type: none"> <li>• Early warning system</li> <li>• Vulnerability studies of the agriculture sector</li> </ul>	No mention	No NAP

Source (INDC, 2015)

### Climate Related Agricultural Programmes

DAFF is implementing an early warning system that disseminates extreme weather warnings to farming communities and land care interventions as a community based approach to sustainable management and use of agricultural natural resources. The land care programme is promoting conservation agriculture and other practices aimed at sustainable soil management. DAFF is working with FAO, having established the conservation agriculture task force for promoting uptake of conservation agriculture at farm level.

### Agricultural Extension System, Strategies and Guidelines

DAFF through the Directorate of Education, Training and Extension Services (DETES) provides agricultural extension services to farmers. There are a number of farmer’s organisations in South Africa that are providing agricultural extension services. The African Farmers’ Association of South Africa (AFASA) and Agri South Africa (AgriSA) are the main organisations providing these services. NGOs such as Africare and Association for Rural Development (AFRA) also provide extension services.

DAFF has been implementing the National Framework for Extension Recovery Plans, a strategy to revamp extension and advisory services (Government of South Africa, 2011). The ERP focuses on creating visibility and accountability of extension, promoting professionalism and improving the image of extension, recruiting extension personnel, reskilling and reorienting extension workers and

providing ICT infrastructure and other resources. ERP has helped in increasing the number of extension officers on the ground (Government of South Africa, 2011).

DAFF is in the process of developing a national policy on extension and advisory services, which among other things, will consider alternative extension methodologies, alternative institutional arrangements for providing extension services (including a 'public/private mix' in the overall system), and the creation of a professional body to help advance the extension profession (Government of South Africa, 2012).

The National Framework for Extension Recovery Plan does not contain specific information on climate change adaptation considerations to be disseminated to farmers. However, it clearly outlines how the extension service will be supported so that it can become effective in reaching out to the farmers.

### **Opportunities for ACCRA Engagement**

South Africa has climate proofed most of its relevant policies but there remains an opportunity to engage DAFF on the incorporation of specific climate change relevant RAP content into national agriculture programmes.

## **Swaziland**

### **Overview of Agriculture**

Agriculture is an important sector in the Swaziland economy and its contribution to GDP is 8% in 2011-2012 (Kingdom of Swaziland, 2014). The sector employs 9% of the country's labour force (Kingdom of Swaziland, 2005).

Production in the agricultural sector is undertaken on Swazi Nation Land (SNL) and Title Deed Land (TDL). SNL holds 56% of the land and is governed by Swazi Law and Custom, whilst TDL constitutes 43% of the land and is privately owned by Government, companies and individuals and less than 1% is for urban development (SADC Secretariat, 2011). Maize, cotton, legumes, sweet potatoes, and horticulture are the main crops produced by the agriculture sector.

The sector is vulnerable to climatic shocks as most farmers practice rainfed agriculture. Swaziland is one of the Sub-Saharan African countries where the HIV/AIDS infection is high. There is no doubt that the HIV/AIDS pandemic has the potential to seriously increase poverty and hunger and reduce the capacity for accelerating economic growth. The country is faced with very fast rates of soil erosion due to poor land management and overgrazing. Water shortages are a serious impediment to intensifying and diversifying agriculture. Farmers also have difficulties to access finance and appropriate agricultural technologies (Kingdom of Swaziland, 2005).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Ministry of Agriculture is implementing the Comprehensive Agricultural Sector Policy (CASP) of 2005 which aims to provide clear guidance on policy options and measures necessary to enhance sustainable agriculture development and its contribution to overall economic growth, poverty alleviation, food security and sustainable natural resource management (Kingdom of Swaziland,

2015). Within CASP, the Government has developed the Swaziland National Agricultural Investment Plan (NAIP) whose goal is to increase the contribution of agriculture to economic development, reduce rural poverty and improve food and nutrition security. Through NAIP implementation, the agriculture sector will achieve 6% growth in agricultural GDP (Kingdom of Swaziland, 2015).

SNAIP has prioritised the following programmes: (1) Sustainable Natural Resources Management; (2) Improved Access to Markets and Value Chains; (3) Food Supply and Reducing Hunger; (4) Agricultural Research, Training and Extension; and (5) Agricultural Knowledge Management (Kingdom of Swaziland, 2015).

### Climate Related Agriculture Policy Elements

CASP is cognisant of the impact of climate change on agriculture and mentions that climate change will lead to reduced yields, increased desertification and bush fires, more intense storms, reduced biodiversity, and threaten water resources. Further, it states that it is a national policy to develop climate change adaptation strategies for food security (Kingdom of Swaziland, 2015).

The NAIP has taken on board the importance of building resilience of agriculture to climate change and has prioritised climate change adaptation and mitigation measures under sub-Programme 3.2: Climate Change Adaptation and Mitigation (Kingdom of Swaziland, 2015). Some of the climate-smart interventions which are earmarked for implementation include water harvesting and irrigation development, and integrated sustainable land management (management of grazing land, reducing tillage for crop production and protection of river courses, etc.). CSA includes mulching, intercropping, conservation agriculture, crop rotation, integrated crop-livestock management, agroforestry, improved grazing and improved water management and innovative practices such as better weather forecasting, more resilient food crops and risk insurance.

The INDC only captures agriculture under the adaptation contributions. Table 12 captures the adaptation contributions, aimed at building the resilience of the agriculture sector.

**Table 12: Proposed adaptation and mitigation measures in Swaziland**

Adaptation measures in INDC	Mitigation measures in INDC	NAP
<ul style="list-style-type: none"> <li>• Agroforestry</li> <li>• Wetlands restoration</li> <li>• Organic farming</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Crop diversification</li> <li>• Livestock management</li> <li>• Improved disaster management</li> <li>• Land scape management</li> </ul>	No mention	No NAP

Source (INDC, 2015)

### Climate Related Agricultural Programmes

No information on existing CSA projects has been found.

## **Agricultural Extension System, Strategies and Guidelines**

The Ministry of Agriculture provides public extension services through the Department of Agriculture Promotion and Extension. The Swaziland National Agricultural Union (SNAU) provides services to its members. The National Agricultural Marketing Board, a parastatal company, also provides advisory services to some farmers. Africa Cooperative Action Trust (ACAT) Lilima and the Coordination Assembly of Non-Governmental Organisations (CANGO) are the main NGOs providing extension services.

The policy on agriculture extension is contained within the CASP (2005). The CASP highlights that it is *National Policy that more efficient and comprehensive extension services be provided to the farmers in order to enhance agricultural productivity* (Kingdom of Swaziland, 2005). The vision is “to be an efficient, pluralistic, participatory, demand-led extension system where all farmers are able to demand and have access to high quality extension services from those best able to deliver them” (SNAIP, 2015). It does not specifically provide reference to climate change.

### **Opportunities for ACCRA Engagement**

There is window of opportunity for supporting the Government in the implementation of the CSA interventions and formulation of extension strategies.

## **Tanzania**

### **Overview of Agriculture**

Agriculture is the mainstay of the economy of Tanzania and accounts for 30% of GDP and employing 67% of the labour force (East Africa Trade and Investment Hub, 2016). Over 90% of active women in Tanzania are engaged in agricultural activities, producing about 70% of the country’s food requirements (Government of Tanzania, 2015).

The country has a dual agricultural economy, a smallholder and a commercial sub-sector. Agriculture is dominated by subsistence farming (estimated at about 4.9 million holdings) with low capital investment that operates under rainfed conditions and farm sizes of 0.2-2.0 hectares. Cereals are the main agricultural crops grown, followed by roots and tubers, pulses and oil seeds, vegetable and cash crops (SADC Secretariat, 2011).

The main challenges of the agriculture sector include rainfall variability, lack of access to finance, inadequate physical infrastructure to support the sector’s limited market access due to inadequate marketing and agro-processing facilities, limited access to quality farm inputs, etc. (SADC Secretariat, 2011).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Government of Tanzania is currently implementing its National Agriculture Policy of 2013 which has mainstreamed climate resilience. One of the policy statements is that *“The Government in collaboration with other stakeholders shall strive to improve adaptation measures to climate change effects and deal with all the risks involved”* (Government of Tanzania, 2013).

The Government signed the CAADP Compact in 2010 to guide agriculture investments, which is implemented through the Agricultural Sector Development Program (ASDP), Agriculture Strategic Plan (ASP), Kilimo Kwanza and the Agricultural Transformation Initiative. The CAADP Compact has identified the following investment priorities: (i) Supportive physical infrastructure; (ii) Water and irrigation infrastructure; (iii) Financial services and incentives to invest in agriculture; (iv) Knowledge and information; (v) Value addition activities (agro-processing and mechanisation); (vi) Trade/export development services; and (vii) Conducive policy environment to stimulate private sector investment in agriculture (Government of Tanzania, 2010).

Subsequently, the Ministry of Agriculture, Food Security and Cooperatives prepared the Agriculture Climate Resilience Plan (ACRP) in 2014 to guide climate proofing of the agriculture sector (ACRP, 2014). The ACRP has identified a number of interventions for building resilience in agriculture including: use environmental assessment and enforcement strategically to integrate water availability and climate change into irrigation projects and planning, promote the sustainable use of groundwater resources for irrigation purposes; accelerate the uptake of soil and water conservation measures on irrigated and dryland farms; promote appropriate agro-forestry technologies to improve livelihoods and the environment; identify and promote sustainable traditional farming systems, indigenous technologies, and farmer initiatives under similar agro-ecological/agro-economic conditions; implement the disaster management plan; improve communication of weather and early warning system information to farmers; undertake a research programme on building resilience through postharvest processing and value addition; develop a programme to establish value adding industries for farm products initially in food insecure and drought-prone districts; develop a programme on risk management solutions for smallholder agriculture; strengthen integration of pests and diseases into monitoring protocols and early warning systems, and develop research programmes on the links between climate change and pest and disease outbreaks; develop a gender and agriculture coordination mechanism and develop and coordinate a campaign using ICT to raise awareness and disseminate targeted climate and weather information (Government of Tanzania, 2014).

The policy documents are not explicitly aligned to the RAP or other regional policies and strategies.

The Ministry developed the Tanzania Climate-smart Agriculture Programme 2015-2025 under ACRP to support the scaling up of CSA (Government of Tanzania, 2015).

### **Climate Related Agriculture Policy Elements**

The Government of Tanzania is cognisant of the challenges caused by climate change on the economy. In this regard, the Government developed its National Climate Change Strategy of 2013 which lists agriculture among the climate sensitive sectors that need to be supported (Government of Tanzania, 2013).

The Climate-smart Agriculture Programme 2015-2025 addresses strategic climate resilience issues in agriculture such as: improved productivity and incomes through better targeting to climate change impacts; building resilience and associated mitigation co-benefits by increasing productivity, enhancing adaptation and resilience of farming systems and reducing emissions intensity in the context of achieving food and nutrition security, sustainable development and poverty reduction; value chain integration; research for development and innovations aimed at increased use of

improved technologies by smallholder farmers; improving and sustaining agricultural advisory services; improved institutional coordination for effective discharge of the CSA Programme.

Tanzania has approved both the INDC and NAPA. Both documents capture agriculture as an important sector which should be supported to adapt to climate change. Table 13 shows the different practices that have been prioritised.

**Table 13: Proposed adaptation and mitigation measures in Tanzania**

<b>Adaptation measures in INDC</b>	<b>Mitigation measures in INDC</b>	<b>NAPA</b>
<ul style="list-style-type: none"> <li>• Up scaling sustainable land and water management</li> <li>• Crop insurance</li> <li>• Climate-smart agriculture</li> <li>• Rainwater harvesting and improved irrigation</li> <li>• Crop management</li> <li>• Strengthening knowledge, extension services and agricultural infrastructure</li> <li>• Livestock management</li> <li>• Livestock insurance strategies</li> </ul>	No mention	<ul style="list-style-type: none"> <li>• Promote indigenous knowledge</li> <li>• Change planting dates in some agro ecological zones</li> <li>• Increase irrigation to boost maize production in selected areas</li> <li>• Drip irrigation for specific regions</li> <li>• Reduce reliance on maize as staple food by growing short-season and drought tolerant crops such as sorghum and millet</li> <li>• Shift crop farming to more appropriate agro-ecological zones</li> <li>• Change crop rotation practices</li> <li>• Integrated crop and pest management</li> <li>• Make better use of climate/weather data, weather forecasts, other management tools</li> <li>• Create awareness on negative effects of climate change</li> <li>• Sustainable water management to boost food crop production</li> <li>• Strengthen early warning system</li> </ul>

Source (INDC, 2015; NAPA, 2007)

### **Climate Related Agricultural Programmes**

The Upper Mgeta Development Programme (UMADEP) and other programmes based at Sokoine University are promoting crop rotation, improved seed, fertiliser, manure and agro-forestry and have enabled successful production of vegetables and fruits (Government of Tanzania, 2014).

### **Agricultural Extension System, Strategies and Guidelines**

The Ministry of Agriculture, Food Security, and Cooperatives (MAFC), the Ministry of Livestock Development and Fisheries (MLDF), Sokoine University of Agriculture, and other education and research institutions around the country provide agricultural extension (GFRAS, 2017). Public extension services are provided under the District Councils through the District Agriculture and Livestock Development Office headed by the District Agriculture and Livestock Development Officer (DALDO). The government is now encouraging the private sector to provide and finance extension services (SADC Secretariat, 2012).

Farmers' organisations such as the Savings and Credit Cooperatives Societies (SACCOS) and Tanzania Horticultural Association (TAHA) are actively engaged in training farmers. Some NGOs play a critical role in the provision of extension services, including Sasakawa Global 2000 and African Tillage Network (ACT).

The National Agricultural Policy is cognisant of the importance of having effective and productive human resources in the agricultural sector for generation and diffusion of technology. The policy aims to facilitate the strengthening of agricultural extension services through transforming them to ensure the provision of quality services with increased private sector participation.

The Ministry of Agriculture, Food Security and Cooperatives is implementing the Agricultural Extension Implementation Guidelines of 2008 and the Fisheries Extension Services Delivery Guidelines of 2013. The guidelines are aimed at implementing the policies on agriculture extension. They show the various approaches of targeting farmers, how extension services should be coordinated and delivery methods of the extension messages, etc.

Climate change has not yet been mainstreamed in the Agricultural Extension Implementation Guidelines (Government of Tanzania, 2008).

### **Opportunities for ACCRA Engagement**

Even though the country has a CSA framework, the extension methodologies have not yet incorporated CSA. In this regard, there exists an opportunity of supporting the Ministry of Agriculture to incorporate CSA best practices in the extension implementation guidelines in line with the RAP.

## **Zambia**

### **Overview of Agriculture**

Agriculture is prioritised as the engine for Zambia's economic growth and national development as it contributes 18% to the GDP (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2017). Over 60% of the population lives in rural areas where they are predominantly engaged in the production of crops, especially staple foods (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2011).

The main food security crops include maize, sorghum, millet, rice, cassava and wheat. The main cash crops include groundnuts, beans, cotton, tobacco, coffee and sunflower. Apart from crops, livestock production and fisheries are important subsectors.

The Ministry of Agriculture has identified a number of challenges which affect the performance of the sector, including: low investment, low production and productivity especially among smallholder farmers due to low input use and low levels of technology, and failure to fully recognise that chronic hunger and malnutrition is a critical threat to Zambia's long term development (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2011).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Zambian Government is currently implementing its National Agricultural Policy 2012–2030 which aims at facilitating the development of a competitive, diversified, equitable and sustainable

agriculture sector (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2011). Its objectives are to: (i) Promote sustainable increase in agricultural productivity of major crops with comparative advantage; (ii) Continuously improve agricultural input and product markets so as to reduce marketing costs of agribusiness, including small-scale farmers and farmer groups; (iii) Increase agricultural exports to preferential markets at regional and international levels; (iv) Improve access to productive resources and services for small-scale farmers, especially women and young farmers, in outlying areas to enable them to increase production of staple foods, including fruits and vegetables for own consumption and the surplus for income generation; (v) Continuously strengthen public and private sector institutional capabilities to improve agricultural policy implementation, resource mobilisation, agriculture research, technology dissemination, and implementation of regulatory services.

The Government has developed its NAIP 2014-2018 within the framework of the National Agricultural Policy. Its overall objective is to facilitate and support the development of a sustainable, dynamic, diversified and a competitive agricultural sector that assures food security at household and national levels and maximises the sector's contribution to GDP (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2012). The NAIP has prioritised four investment programmes: (i) Sustainable natural resources management; (ii) Agricultural production and productivity improvement; (iii) Market access, and, (iv) Food and nutrition security and disaster risk management (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2013).

Both the NAIP and National Agricultural Policy do not make reference to the RAP.

#### **Climate Related Agriculture Policy Elements**

The National Agricultural Policy recognises the importance of addressing climate change impacts on agriculture and prioritises climate resilient production practices such as conservation agriculture and tree planting (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2011). Climate change resilience is mainly covered in NAIP's programme on food and nutrition security and disaster risk management. Further, the NAIP states that *the Government will develop and implement policies and programmes that support crop diversification, livestock and fisheries production, increased productivity in crops and livestock, sustainable land and water management, including forestry, agro-forestry, climate change adaptation and mitigation and other environmentally friendly agricultural systems and climate variability mitigation strategies for capture fisheries* (GOVERNMENT OF THE REPUBLIC OF ZAMBIA, 2013).

Both INDC and NAPA have identified agriculture as an important sector delivering on adaptation and mitigation benefits. CSA has been prioritised in the INDC. Table 14 captures the agriculture practices prioritised by the NAPA and INDC.

**Table 14: Proposed adaptation and mitigation measures in Zambia**

<u>Adaptation measures in INDC</u>	<u>Mitigation measures in INDC</u>	<u>NAPA</u>
<ul style="list-style-type: none"> <li>• Early warning system</li> <li>• Promoting Climate-smart Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Conservation agriculture</li> <li>• CSA</li> </ul>	<ul style="list-style-type: none"> <li>• promote a well-regulated and profitable irrigation sub-sector that is attractive to both public and private sectors</li> </ul>



<ul style="list-style-type: none"> <li>• Water use efficiency management</li> <li>• Fertiliser efficiency use</li> <li>• Development and use of resilient varieties</li> <li>• Conservation agriculture</li> <li>• Crop management</li> <li>• Livestock CSA practices</li> <li>• Drought tolerant livestock breeds</li> <li>• Sustainable aquaculture</li> <li>• Training of farmers and extension workers on CSA</li> <li>• Improved disease/pest control</li> <li>• Sustainable land/soil management</li> </ul>		<ul style="list-style-type: none"> <li>• promote improvement of agricultural infrastructure and land for sustainable production and productivity</li> <li>• improve productive efficiency of livestock sector in a sustainable manner and support marketing of both livestock and livestock products and contribute to food security and increased income</li> <li>• Conservation tillage for moisture conservation</li> <li>• Farmer-based aquaculture training</li> </ul>
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Source (INDC, 2015; NAPA, 2007)

### Climate Related Agricultural Programmes

The Department for International Development (DFID) has provided support of £25 million to the Conservation Farming Unit (CFU) to support implementation of a CSA Zambia (CSAZ) programme for 2016-2021. The programme is expected to benefit more than 600,000 small and medium scale farmers. It is training farmers in CSA techniques, enabling them to understand the steps involved in applying the technology and benefits they would get; and facilitating commercial relationships between farmers and private sector providers of agricultural services and inputs such as use of machinery and herbicides.

FAO and the Ministry of Agriculture have been implementing a CSA project (FAO, 2013) which has been creating awareness of and developing policy options for a more holistic approach to national agriculture, food security and climate change goals. Secondly, FAO in partnership with the Ministry of Agriculture and Livestock (MAL) with financial support from the European Union is implementing the Conservation Agriculture Scaling up (CASU) project which aims to contribute to reduced hunger, improved food security, nutrition and income while promoting sustainable use of natural resources in Zambia.

Vuna program is supporting the Government of Zambia on finalisation of the CSA strategy and the CSA manual.

### Agricultural Extension System, Strategies and Guidelines

The Ministry of Agriculture and the Ministry of Fisheries and Livestock are responsible for providing public extension services through the Department of Field Services. According to NAIP (2013), the extension officer to farmer ratio in Zambia is 1:900 which is below the recommended ratio of 1:400.

The Zambia Farmers Union, National Peasants and Small-Scale Farmers Association and the conservation farming unit are the main farmers' organisations involved in the provision of extension services. The private sector also plays an important role in the provision of information. Most private sector players are major seed companies which are active in the delivery of advisory services. Players in the cotton, sugarcane, and tobacco sectors are active in providing advisory services to their clients.

There are a number of NGOs which are providing agriculture extension services, including CARE International, World Vision, and Africare.

The National Agricultural Policy highlights the need for Zambia to quickly strengthen research and extension services to enhance productivity and competitiveness with a view of harnessing opportunities in national, regional and international agriculture markets. The Department of Agriculture has developed the extension manual to guide the provision of extension services (The Agriculture Extension Manual, 2013). The manual contains information on various approaches to be employed to reach out to farmers, types of technologies to be disseminated, as well as various agronomic and climatic factors to consider by the farmers when undertaking their agricultural activities. The extension manual is comprehensive and recognises the need for adoption of climate resilient practices and technologies and is implemented at farm level.

### **Opportunities for ACCRA Engagement**

Even though the Ministry of Agriculture has developed the NAIP and policies and strategies that recognise the importance of addressing climate change, the proposed CSA interventions are not exhaustive. In this regard, there is opportunity to engage the Ministry to incorporate all the climate change related RAP elements into its policies, strategies and programmes.

## **Zimbabwe**

### **Overview of Agriculture**

The agriculture sector is the backbone of the economy as it contributes 15-20% of GDP, 40% of exports, supplies 63% of agro-industrial raw materials, and is a source of livelihood to approximately 70% of the population (Government of Zimbabwe, 2013).

The agriculture sector covers crop and livestock farming. Crop farming is practiced by the majority of the population while livestock farming is concentrated in the drier regions. The major food crops include maize, sorghum, pearl millet, finger millet, ground nuts, wheat, cow peas, Bambara nuts and sweet potatoes.

Some of the challenges faced by the agriculture sector include low productivity, low level of farming skills amongst farmers, high production costs, limited availability of suitable finance schemes from commercial banks, lack of clearly defined agricultural input support policy, shortages of crop inputs such as fertiliser, poorly developed markets for some products, unfair trading practices to the detriment of producers as well as consumers (Government of Zimbabwe, 2012).

### **Agricultural Policies and Programmes (with climate change relevance)**

#### **Agricultural Policy Framework**

The Comprehensive Agricultural Policy Framework (CAPF) (2012-2032) is the main policy document that is guiding agricultural development in Zimbabwe (Government of Zimbabwe, 2012). The vision of the agriculture sector is *a prosperous, diverse and competitive agriculture sector, ensuring food and nutrition security significantly contributing to national development.*

The main objectives of the CAPF include assuring national and household food and nutrition security; ensuring that the existing agricultural resource base is maintained and improved; generating income and employment to feasible optimum levels; increasing agriculture’s contribution to the GDP; contributing to sustainable industrial development through the provision of home-grown agricultural raw materials; and expanding significantly the sector's contribution to the national balance of payments (Government of Zimbabwe, 2012).

As a way of implementing CAPF and CAADP, Zimbabwe has developed the Zimbabwe Agriculture Investment Plan (ZAIP) 2013-2018. ZAIIP is a comprehensive framework for the development of the agriculture sector in Zimbabwe. The overall goal of ZAIIP is to *facilitate engendered sustainable increase in production, productivity and competitiveness of Zimbabwean agriculture that focuses on client and consumer needs through building capacity of farmers and institutions, and improving the quantity and quality of public, private and development partner investment and policy alignment.*

ZAIIP has identified four strategic investment areas: (1) increasing production and productivity through improved management and sustainable use of land, water, forestry and wildlife resources; (2) increased participation of farmers in domestic and export markets through development of an efficient agricultural marketing system and an enabling environment for competitive agricultural production, investment (Domestic and FDI) and trade; (3) ensuring food and nutrition security by facilitating a cohesive multi-sectoral agricultural response; and (4) improving gender sensitive agricultural research, technology dissemination and adoption (Government of Zimbabwe, 2013).

### **Climate Related Agriculture Policy Elements**

The ZAIIP is cognisant of the effects of climate hazards on agriculture productivity and states that CSA technologies and management are important factors to enhance food and nutrition security. Under ZAIIP results area 1, which is focusing on increasing production and productivity through improved management and sustainable use of land, water, forestry and wildlife resources, the country will support the following: promoting up/out scaling of adoption of conservation farming; identifying and adapting appropriate small-scale farmer labour saving technologies for conservation farming; linking farmers with commercial suppliers of gender appropriate machinery and equipment for conservation farming; promoting the adoption of water harvesting/ capturing/ storage techniques; mobilisation of international concessional and private sector finance; promote appropriate water efficient irrigation systems (drip irrigation and inexpensive pumps).

Further, the Agriculture Policy identifies, in collaboration with seed companies and international and national research organisations, research into the development of high yielding and drought tolerant crop varieties and supporting the production of small grains especially in the drought prone areas.

The INDC for Zimbabwe has identified agriculture as delivering on adaptation contributions and Table 15 contains the prioritised agriculture activities to be implemented.

**Table 15: Proposed adaptation and mitigation measures in Zimbabwe**

<b>Adaptation measures in INDC</b>	<b>Mitigation measures in INDC</b>	<b>NAP</b>
<ul style="list-style-type: none"> <li>• Strengthening of the early warning system</li> <li>• Sustainable land and soil management</li> </ul>	No mention	No NAP

<ul style="list-style-type: none"> <li>• Rainwater harvesting and improved irrigation</li> <li>• Promoting indigenous knowledge on drought tolerant crop types and livestock breeds</li> <li>• Promote climate indexed insurance</li> <li>• Crop management</li> <li>• Livestock management</li> <li>• Improved disease/pest control</li> <li>• Sustainable land/soil management</li> </ul>		
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Source (INDC, 2015)

### **Climate Change Related Agricultural Programmes**

FAO has worked with the Government to increase farmers’ uptake of conservation agriculture. FAO has initiated a programme of training and demonstrations, and introduced labour saving mechanical planters to win over farmers. As a result, in Zimbabwe more than 300,000 farmers are practicing conservation agriculture (FAO, 2017).

### **Agricultural Extension System, Strategies and Guidelines**

The Department of Agricultural, Technical and Extension Services (AGRITEX) of the Ministry of Agriculture, Mechanisation and Irrigation is the main provider of public extension services. However, the extension worker to farmer ratio decreased from 1:100 in the 1980s to 1:600 by 2008 (Government of Zimbabwe, 2013). The Commercial Farmers’ Union (CFU) and the Zimbabwe Farmers Union (ZFU) are the main farmers’ organisations providing advisory services to farmers.

Africa 2000 Network, Africare, Foundation for Farming, Care International and other NGOs have been actively engaged in the agriculture sector providing extension services. The private sector also provides extension services to farmers along specific value chains. The Cotton Company of Zimbabwe (COTTOCO) provides extension services to cotton farmers, while the Hippo Valley Estates Triangle Sugar Corporation Ltd provides advisory services to sugarcane growers.

The Government does not to have a specific policy and strategy on agriculture extension.

The Zimbabwe Climate Change Response Strategy recommends to strengthen the capacity of farmers, extension agencies, and private agro-service providers to take advantage of current and emerging indigenous and scientific knowledge on stress tolerant crop types and varieties, including landraces that are adaptable to arising climatic scenarios (ZCCS, 2016). The ZAIP has prioritised support for strengthening the extension services to ensure farmers have the capacity to increase productivity.

AGRITEX in collaboration with FAO has developed the conservation agriculture guide for extension workers (ZCSATF, 2012). The guide was developed in close collaboration with the research department, civil society and private sector. The guide provides the detailed steps on growing crops under conservation agriculture practice.

### **Opportunities (or Barriers) for ACCRA Engagement**

The National Agriculture Policy, Climate Change Response Strategy and the ZAIP recognise the need to address climate change effects in agriculture. However, the extension strategies have not been developed and there is need to support the incorporation of CSA practices in the extension manuals.

The development of a new CSA framework creates a good opportunity for ACCRA to engage in its development.

## Regional Summary of the Climate Proofing Status of Policies and Strategies

Agriculture is well captured in the (I)NDCs of the SADC Member States. This is due to the important role the sector plays in these countries with respect to economic development, food security and livelihoods. However, not all the national agriculture policies and strategies of the SADC Member States explicitly address CCAA/CSA or propose measures to address the challenges posed by climate change. Table 16 provides a summary of the climate proofing status of SADC Member States policies and strategies. It shows that 7 out of the 15 SADC Member States have policies which recognise climate change impacts on agriculture and articulate proposed responses.

**Table 16: Regional summary of climate proofing status of policies and strategies**

	Country	Document	Status of climate proofing and prioritisation of CCAA, CSA or mitigation measures	Date for review
1	Angola	Agriculture Strategy PDMPSA	No climate change measures incorporated	2017
2	Botswana	Agriculture Policy	No climate change measures have been mainstreamed	Ongoing 2016
3	DRC	Extension Strategy NAIP	No climate change measures Climate change measures have been mainstreamed	No date 2020
4	Lesotho	Agriculture Extension Policy and Strategy NAPFS	No climate change measures have been mainstreamed	Ongoing
5	Madagascar	NAIP	Climate change measures have been mainstreamed	2020
6	Malawi	ASWARP Extension guide	Climate change measures in both	Ongoing from 2015 No date
7	Mauritius	Strategic Plan For The Food Crop, Livestock and Forestry Sectors	Climate change measures have been mainstreamed	2020
8	Mozambique	Extension Masterplan NAIP	No climate change measures have been mainstreamed in both	2016 2020
9	Namibia	Agriculture Policy	Climate change measures have been mainstreamed	No date
10	Seychelles	SNAIP	Climate change measures have been mainstreamed	2020
11	South Africa	Strategic plan Extension Policy	Climate change measures	2017 Ongoing
12	Swaziland	SNAIP	Has climate measures	No date
13	Tanzania	Extension guides National Agriculture	No climate change measures Has climate change measures	No date

14	Zambia	NAIP Extension manual	Climate change measures have been mainstreamed	2018 No date
15	Zimbabwe	ZAIP CA guidelines	Has climate measures mainstreamed	No date

## Conclusion and Recommendations

All 15 SADC Member States have identified agriculture as an important sector and a priority under their (I)NDC, national policies and strategies. Countries are at different stages of developing or revising these policies and strategies. However, most countries have not mainstreamed climate change considerations, adaptation or CSA in their agricultural strategies and policies. Some of the policies recognise climate change but there are no clear recommendations on how climate change will be addressed explicitly.

This creates great momentum in terms of policy (re-)formulation and thus also provides windows of opportunity for ACCRA to engage policy makers to support these processes at national level. In particular, with regards to extension strategies and guidelines, CCAA/CSA are not yet well integrated at national or sub-national levels. This creates the need for capacity strengthening for extension decision makers and practitioners to design, prioritise and implement CCAA/CSA measures with ACCRA having an opportunity to play a role here as well.

The (I)NDCs call for international climate finance support for the implementation and achievement of the national mitigation and adaption goals. The international climate finance arena offers huge opportunities, though what exactly is required by financing institutions and what should be aimed at by SADC Member States remains opaque. Here, ACCRA has opportunity to play a role in supporting SADC Member States in understanding the international financing mechanisms, in writing bankable investment proposals and in designing national programmes for implementation.

## Annex 1: Mapping National CSA Priorities with RAP Climate Change Elements

	RAP elements addressing climate change						
Country	Strengthening regional research in developing appropriate adaptation strategies for climate variability and change in the agriculture sector	Strengthening regional research in developing appropriate adaptation strategies for climate variability and change in the agriculture sector	Developing capacity for carbon stock inventory and analysis with a view to enabling the agriculture sector to benefit from carbon trading;	Promoting R&D on climate change and variability data and information generation and dissemination for the provision of early warning information to farmers	Supporting SADC member states to achieve their own climate change policies, strategies and programmes	Ensuring the effective engagement and participation of the agriculture sector in the international dialogue on climate change; and	Promoting the adoption and incorporation of sound environmental impact mitigation measures in national and regional agricultural policies and programmes
Angola					<ul style="list-style-type: none"> <li>• Marine Aquaculture</li> <li>• Conservation Agriculture</li> <li>• Biofuels promotion</li> <li>• Irrigation development (INDC)</li> </ul>		
Botswana					<ul style="list-style-type: none"> <li>• Build and maintain national capacity to deal with drought and other emergencies</li> <li>• Providing farming community with technology necessary to ensure efficient production</li> <li>• Capital development of large irrigation dams and related infrastructure to increase usage of water for agriculture</li> </ul>		
Democratic Republic of Congo					<ul style="list-style-type: none"> <li>• Promoting installation of composting facilities around major cities,</li> <li>• Management of water quality for irrigation of vegetable crops</li> <li>• Promotion of drip irrigation</li> <li>• Water storage dam multipurpose, floodplains and water catchment works;</li> <li>• Protection of riverbanks</li> <li>• Restoration of soils and SWC</li> </ul>		

Lesotho					<ul style="list-style-type: none"> <li>• Conservation agriculture-based household food security includes strengthened small-scale livestock and fish production; expanded promotion of conservation agriculture methods and small-scale irrigation techniques; and promotion of food utilisation techniques (incl. preservation)</li> <li>• commercial agriculture-based block farming will undertake proactive piloting of block farming concept in all districts to demonstrate viability of block farming as business option, develop economic basis for valuation of rented land in agriculture; establish database on productivity and profitability of agricultural enterprises; pioneer extension approaches to support commercial farming; learn lessons from rental and equity models of block farming.</li> <li>• Supporting rural livelihoods through enhancing capacity of various support services and framework conditions such as agricultural research, extension services, animal production and health services.</li> <li>• Supporting on-farm land management through promoting SWC on arable land, agroforestry, water harvesting and conservation</li> <li>• Communal land natural resource management which stimulates rehabilitation of degraded arable and rangeland, combining engineering structures, vegetative practices and improved agronomy.</li> </ul>		
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					<ul style="list-style-type: none"> <li>• Rangeland management focuses on institutional strengthening of Grazing Associations in their control of Range Management Areas.</li> <li>• Water harvesting and management will adopt a phased approach to rehabilitation and construction of water conservation infrastructure. Existing small earth dams will be rehabilitated. New small and medium dams will be built, along with weirs and storage tanks, and local water user management institutions will be established and strengthened.</li> </ul>		
Madagascar	PSAEP promotes applied research on non-destructive fishing techniques, genetics, animal nutrition, animal health, CSA, appropriate CCAA technologies and socio-economic aspects.				Increasing resilience of agricultural production systems to cope with climate change and promote sustainable agricultural practices to mitigate emissions of greenhouse gases.		
Malawi					<ul style="list-style-type: none"> <li>• Promotion of conservation farming,</li> <li>• Afforestation,</li> <li>• Protection of fragile land and catchment areas, and</li> <li>• Rehabilitation of degraded agricultural land.</li> <li>• Water use efficiency, expanding area under irrigation through the Green Belt Initiative (GBI).</li> </ul>		
Mauritius					<ul style="list-style-type: none"> <li>• Crop insurance</li> <li>• irrigation development</li> </ul>		
Mozambique	Development of improved varieties that ensure greater crop yields with				<ul style="list-style-type: none"> <li>• Promote actions that reduce greenhouse gas emissions, support communities and producers in adoption of mitigation measures and CCAA;</li> </ul>		

	high nutrition value other agriculture products				<ul style="list-style-type: none"> <li>• Ensure use, sustainable management and conservation of natural resources;</li> <li>• Promote access and land tenure rights to communities</li> <li>• Promote sustainable management of native forests</li> <li>• Promote reforestation of degraded areas</li> </ul>		
Namibia	<ul style="list-style-type: none"> <li>• Support research for soil fertility enhancement technologies</li> <li>• Develop ATCs and continue to import and adapt the latest production</li> </ul>				<p><b>Crop Production</b></p> <ul style="list-style-type: none"> <li>• Expand Green Scheme Programme to develop irrigable land along perennial rivers, large dams and other sustainable water sources</li> <li>• Implement conservation agriculture programme</li> <li>• Implement Dry Land Crop Production Programme (DCPP) and support farmers through the provision of subsidised fertiliser, improved seeds, weeding, ploughing services</li> <li>• Support research for soil fertility enhancement technologies</li> <li>• Develop ATCs and continue to import and adapt latest production technologies to Namibian conditions</li> <li>• Enforce soil conservation through implementation of Soil Conservation Legislation</li> <li>• Develop and implement agro-forestry promotion programme</li> <li>• Establish irrigation scheme targeting fodder production</li> </ul> <p><b>Livestock Production</b></p> <ul style="list-style-type: none"> <li>• Implement National Rangeland Management Policy and Strategy</li> <li>• Strengthen capacity for rangeland/pasture science research and rangeland management monitoring to assist farmers accordingly</li> </ul>		

					<ul style="list-style-type: none"> <li>• Protect and promote conservation of indigenous breeding materials through appropriate legislation</li> <li>• Promote development of feedlots in areas where they are economically viable</li> <li>• Promote use of livestock breeds that can adapt to the local climatic conditions</li> </ul>		
Seychelles	Climate-smart Agriculture				<ul style="list-style-type: none"> <li>• promotion of good land husbandry practices for soil conservation and improving soil fertility</li> <li>• Climate-smart agriculture</li> <li>• Sustainable use of agricultural land and water.</li> </ul>		
South Africa	Climate-smart Agriculture			Implement Early Warning System to disseminate extreme weather warnings to farming communities	Climate-smart Agriculture		
Swaziland				Weather forecasting,	<ul style="list-style-type: none"> <li>• Water Harvesting and Irrigation Development ;</li> <li>• Integrated Sustainable Land Management</li> <li>• Management of grazing land,</li> <li>• Reducing tillage for crop production and protection of river courses, etc.</li> <li>• Climate-smart agriculture</li> <li>• Conservation agriculture</li> <li>• Integrated crop-livestock management,</li> <li>• Agroforestry, improved grazing and improved water management</li> <li>• More resilient food crops and risk insurance.</li> </ul>		
Tanzania	Undertake a research programme on building resilience through				<ul style="list-style-type: none"> <li>• Improve productivity and incomes through better targeting to climate change</li> </ul>		

	<p>postharvest processing and value addition</p> <p>Research for Development and Innovations aimed at increased use of improved technologies by smallholder farmers</p>				<ul style="list-style-type: none"> <li>• Building resilience and mitigation co-benefits by increasing productivity, enhancing adaptation and resilience of farming systems and reducing emissions intensity in context of achieving food and nutrition security, sustainable development and poverty reduction,</li> <li>• Value Chain Integration ,</li> <li>• Improving and Sustaining Agricultural Advisory Services measures,</li> <li>• Improved Institutional Coordination for effective discharge of CSA Programme.</li> </ul>		
Zambia					<ul style="list-style-type: none"> <li>• Support crop diversification, livestock and fisheries production, increased productivity in crops and livestock,</li> <li>• Sustainable land and water management, including forestry, agro-forestry,</li> <li>• Climate change adaptation and mitigation and other environmentally friendly agricultural systems and</li> <li>• Climate change and climate variability mitigation strategies for capture fisheries.</li> </ul>		
Zimbabwe					<ul style="list-style-type: none"> <li>• Promoting up/out scaling of adoption of conservation farming.</li> <li>• Identifying and adapting appropriate small-scale farmer labour saving technologies for conservation farming.</li> <li>• Linking farmers with commercial suppliers of gender appropriate machinery and equipment for conservation farming</li> <li>• Facilitate an audit to determine current status of irrigation infrastructure and to redesign and rehabilitate it</li> <li>• Rehabilitation of existing priority sources of water (dams, rivers, boreholes) for irrigation.</li> </ul>		

					<ul style="list-style-type: none"><li>• Promoting adoption of water harvesting/capturing/storage techniques;</li><li>• Mobilisation of international and private sector finance.</li><li>• Promote appropriate water efficient irrigation systems (drip irrigation, inexpensive pumps).</li></ul>		
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