Institutional, Policy and Legal Evidence-Based Analysis of Agriculture Water Management (AWM) in Swaziland

Final Report

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Table of Contents

ABBREVIATIONS AND ACRONYMS

ACAT	Africa Cooperative Action Trust
AWM	Agricultural Water Management
CAADP	Comprehensive African Agriculture Development Programme
CASP	Comprehensive Agriculture Sector Policy
DWA	Department of Water Affairs
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
GDP	Gross Domestic Product
MIS	Management Information System
IWRM	Integrated Water Resources Management
LUSIP	Lower Usuthu Smallholder Irrigation Project
MDG	Millennium Development Goal
MEPD	Ministry of Economic Planning and Development
MITC	Ministry of Information Technology and Communication
MNRE	Ministry of Natural Resources and Energy
MOA	Ministry of Agriculture
MoF	Ministry of Finance
MOFA	Ministry of Foreign Affairs
MoH	Ministry of Health
MoHSW	Ministry of Health and Social Welfare
MTAD	Ministry of Tinkhundla Administration and Development
MTEA	Ministry of Tourism and Environmental Affairs
NDS	National Development Strategy
NGO	Non-Governmental Organisation
NWA	National Water Authority
O&M	Operation and Maintenance
RBA	River Basin Authority
RDA	Rural Development Area
SADC	Southern African Development Community
SADP	Swaziland Agriculture Development Program
SEA	Swaziland Environmental Authority
SNL	Swazi Nation Land
SWADE	Swaziland Water and Agriculture Development Enterprise
SEC	Swaziland Electricity Company
SERA	Swaziland Energy Regulatory Authority
SWADE	Swaziland Water and Agricultural Development Enterprise
SNTC	Swaziland National Trust Commission
SWSC	Swaziland Water Services Corporation
TDL	Title Deed Land
UNISWA	University of Swaziland

OVERVIEW OF AGRICULTURAL WATER MANAGEMENT

Agriculture Water Management (AWM) involves a range of activities from managing rainfall, rivers, lakes and groundwater to infrastructure development, food production, capacity building, research and information and knowledge management. Structural AWM interventions such as soil and water conservation, water harvesting, irrigation and drainage infrastructure are common. For the sake of sustainability, non- structural aspects of AWM such as legislations, policies, institutions and associated actors are increasingly being recognized to complement AWM interventions and both elements can take the form of a single functional structure (adapted from FAO, 2006)[1]. For example, the operation and maintenance of a dam, whether new or reconditioned requires a management system involving people. Non-structural aspects of AWM such as regulatory frameworks (e.g. policies and legislations) and institutional functions (water service delivery) as well as capacity building (e.g. research, information, and knowledge management) are important components of governance and management.

Within the development discourse, the goal of good AWM is sustainable management and utilization of water and associated resources (e.g. land, forests, and soil) for optimal agricultural production. With increasing demand for food and energy due to a large human population, sustainable agricultural is key – i.e. increasing food production while conserving the available finite fresh water resources. This requires governance mechanisms with good policy and regulatory frameworks. Unfortunately, experience worldwide has shown that poor governance tends to be one of the root causes of poor agriculture water management. Within a given context therefore it is important to understand the environment in which legislations, policies and institutions operate so as to identify key determinants of a given AWM goal. For example, one may want to ask what factors facilitate or hinder the influence of a given policy intervention in relation to efficiency of an irrigation scheme. A critical analysis of determinants of the enabling environment for a given AWM goal is often necessary and failure to do so can lead to poor investment in AWM and low levels of associated external support.

On the other hand, it is important to acknowledge that measuring and analysing key attributes of the AWM environment such as human and institutional capacities can be a complex undertaking. What needs to be done to bring about improvements in the quality and cost-effectiveness of AWM is often known and comparatively straightforward; but how these necessary conditions can be brought about, and more importantly sustained over time, is more difficult.

In an effort to respond to this challenge, the Partnership for Agricultural Water for Africa (AgWA) has developed a tool to identify institutional and policy realities that can provide a practical basis for improving investment, design and implementation of AWM interventions. The tool constitutes a set of instruments which address the different aspects of water resources development in agriculture and helps to identify reforms/instruments/activities/investments which can overcome some of the challenges and obstacles that are inherent in development interventions. This report presents an analysis of a case study from Swaziland.

1FAO 2006. *Demand for products of irrigated agriculture in Sub-Saharan Africa*. FAO Water Reports No. 31. Rome, Italy. ftp://ftp.fao.org/agl/aglw/docs/wr31e.pdf.

AGRICULTURAL WATER MANAGEMENT IN THE CONTEXT OF SWAZILAND

The Kingdom of Swaziland is a landlocked country with a total area of 17364 $km^2$and is located in the south eastern part of Africa and is bordered by Mozambique to the east and the Republic of South Africa on all other sides.

The agriculture sector is a very important sector in Swaziland since it has the potential to enhance the quality of life through environmentally sustainable economic growth. Notably, water and land resources are the two most important natural resources to support agricultural productivity. The utilisation, management and development of these two natural resources requires upscaling in order to improve livelihoods and increase productivity and ultimately improve the economy of the nation using the natural endowments available to the country and its citizens.

Swaziland has five principal river basins (the Lomati, Komati, Mbuluzi, Great Usutu and Ngwavuma); total annual renewable water resources amount to 4.5 km^3/year with 42 percent originating from South Africa (FAO, 2005).Water is a major driver for socio-economic development in Swaziland which is evidenced by the country's engagement in large water infrastructure development projects to support economic development. For example, the Maguga dam was constructed in 2001 and the more recent Lubovane dam was constructed in 2008 to support agricultural development as well as other water users such as domestic and hydropower generation.

Agriculture is the main consumer of freshwater resources in Swaziland accounting for almost 96 percent of withdrawal from surface water (Swaziland Government, 2011).

The country promotes the use of surface waters to cater for water demand and limits the use of groundwater resources to domestic and primary purposes. The main reason to support this decision has been the limited information available on groundwater resources. Information gathered through a groundwater survey that was conducted between 1986 and 1991 by the Department of Geological Surveys and Mines, indicated that the groundwater resource potential was equivalent to a sustained flow of 21m^3/s of which 1400 boreholes had tapped only 6 percent by 1992. Today there are over 2000 boreholes in the country which have been drilled to service the needs of communities in the rural areas. Development of a sustained monitoring system will help monitor the groundwater potential and possible increase groundwater utilization to support agricultural activities especially in the rural communities.

The contribution of agriculture to the country's economic development ranges between 10 to 11percent of Gross Domestic Product (GDP) and employs about 9 percent of total formal employment (Ministry of Labour and Social Security, 2009).The Swaziland Integrated labour force survey that was conducted in 2007 and 2008 by the Ministry of Labour and Social Security (2007) indicated that agriculture is one of the largest employers, when considering both formal and informal employment, contributing about 20 percent of the country's total employment. The agriculture sector is dominated by sugarcane production, where sugar exports account for over 70 percent of the total value of agricultural production(Swaziland National Agriculture Investment plan draft report, 2014).Most households in Swaziland derive their

income from agriculture, either as small-scale subsistence producers or as employees of the medium- and large-scale farms and estates (Swaziland Government, 2005). This means that the majority of people in the country derive their livelihood from the agricultural sector.

Two basic land tenure systems exist in Swaziland. The Title Deed Land (TDL) comprises 40 percent of the total land available in Swaziland. The larger portion of land is Swazi Nation Land (SNL) which is held in Trust by the King for the Swazi nation. TDL is mostly used for commercial farming with most of the area under irrigation while SNL farming is mainly dependant on rain-fed agriculture. It is therefore imperative to secure more water supplies to transform the SNL rain-fed agriculture to commercial agriculture to improve socio-economic development.

According to a report from the Central Statistics Office (2009), in 2007, the population of the country was 1018 449 inhabitants, with an average growth rate of 1.3 percent per annum. A total of over 70 percent of the population resides in rural areas while about 50 percent of the population is below 20 years of age (Central Statistics Office, 2009). The World Bank (2012) indicated that poverty levels in Swaziland were as high as 63 percent. The challenge of food security is highly pronounced within the rural areas where there are high levels of unemployment and people's livelihoods depend on subsistence agriculture (World Bank, 2012). The Poverty Reduction Strategy and Action Plan (2006) further confirms the predicament of food insecurity in rural areas by reporting that only about 30 percent of households in rural areas have enough to eat. This means that all the other households depend on food aid and support for survival or are malnourished. The country therefore has to step in together with development partners and help its citizens engage in programmes to increase food productivity while managing water and land resources to ensure sustainability in use of resources.

In order to optimize agricultural productivity in the country, there is need to ensure and facilitate good management in the use of land and water. Issues to be addressed include institutional capacities and linkages, legal and regulatory framework, awareness raising and participation with respect to water resources development and management.

METHODOLOGY

This analysis adopted a mixed methods approach, i.e. both quantitative and qualitative research was conducted. Primary data was collected through different sources: a questionnaire was developed to carry out stakeholder consultations of representatives of institutions involved in AWM; existing laws and policies were collected at the relevant institutions. This primary data was subsequently processed to determine actions, responsibilities and required changes. This work was done in five steps as indicated by the data collection tool from AgWA (Figure 1), these steps are the following:

STEP 1 - MAPPING EXERCISE

Mapping of Institutions, legal frameworks and policies concerned within AWM.A stakeholder list was drawn up identifying stakeholders that were consulted to gain more information of AWM in Swaziland. The stakeholders provided information on laws, policies and functions of their relevant institutions. The

stakeholders interviewed include representatives from the Ministry of Agriculture, Ministry of Natural Resources & Energy (MNRE), National Water Authority, Department of Water Affairs (DWA), Swaziland Water and Agriculture Development Enterprise (SWADE), Ministry of Economic Planning & Development (MEPD), River Basin Authorities (RBAs) and the Swaziland Environment Authority (SEA).

This exercise continues with an analysis of the compendium of environmental laws and policies in Swaziland, as compiled by the Swaziland Environment Authority. This exercise maps the existing laws and policies that govern the use and management of natural resources.

STEP 2 - DIAGNOSTIC EXERCISE

The diagnostic exercise assesses the effectiveness, capacities and governance dimensions of institutions, laws and policies involved in AWM. Five key stakeholder institutions were identified for the AWM sector and semi-structured interviews were conducted with officers from these institutions. The analysis was guided by answering a set of questions through both quantitative and qualitative indicators.

The analysis on the key institutions involved getting information on effectiveness in carrying out mandate, assessment of capital, human and technical capacity as well as assessing governance issues. The set of questions for the interviews included the following: availability and implementation of strategy, appraisal and reward system for staff members, availability of performance indicators, internal relationships and coordination mechanisms, monitoring and evaluation mechanism. Questions on capacity issues included number of staff members, technical expertise available in institution, sources of funding, budget allocation and expenditure. On governance issues the assessment criteria included were involvement of stakeholders, decentralisation of activities, community empowerment and availability and accessibility of data and information.

The assessment of the legal and regulatory framework was conducted on the identified laws and regulations for AWM. The legal and regulatory documents were assessed based on two criteria, the first being the identification of the effectiveness of the legal instrument and then the assessment of the governance dimensions of the available laws. The assessment included the determination of the availability of measures put in place to reach the objectives of the legal and regulatory framework. Questions asked were that do the laws promote transparency, accountability, participation of stakeholders and promote the poor and consider affordability when issues of payments are made.

STEP 3 - ACTION MATRIX

Actions to improve the agricultural water sector were then identified and documented in tables 3.1 to 3.3. In order to develop the action matrix, a list of underperforming areas was identified for key AWM institutions as well as for the legal and regulatory framework. The underperforming areas were identified from stakeholder interviews and analyses. Suggestions to improve the underperforming areas were subsequently developed by the author of this report.

STEP 4 - INSTITUTIONAL AND POLICY INDEX

A summary of the relevant information on the budget analysis will be presented in chapter 4. The quantitative data for the institutional and policy index was collected from documents published by the Ministry of Finance and from interviews with representatives of the Ministry of Economic Planning. Qualitative data was collected from the key stakeholder institutions and mostly concern the use of budgets.

STEP 5 - CONCLUSIONS

Conclusions have been drawn up on the actions, responsibilities and changes to be taken in order to improve AWM.

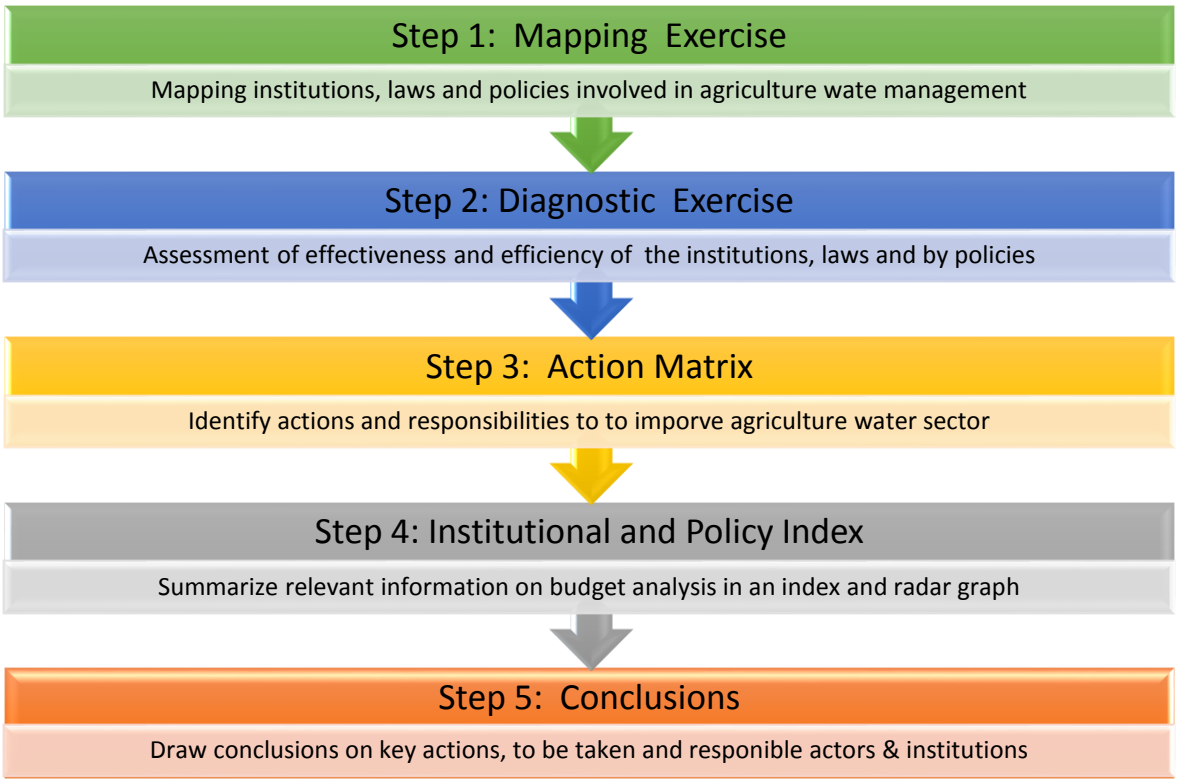

Figure 1. The tool for institutional and policy evidence-based analysis in five steps

STEP 1 - MAPPING EXERCISE OF INSTITUTIONS, LEGAL FRAMEWORKS & POLICIES

A mixed method approach was used to gather information on institutions (1.1), legal & regulatory frameworks (1.2), policies (1.3) and the information was organized in such ways that facilitated the analysis of their governance dimensions/effectiveness/related capacity levels (step 2).

1.1 Institutions and actors

Within this context, institutions are organized entities, whether public or private, responsible for one or more aspects of agricultural water management at any level (national/local) or scale (basin or sub-basin). In this first exercise, the main actors in AWM in Swaziland have been identified, and a description of their main goals and functions are presented (Table 1).

A stakeholder list was drawn up identifying stakeholders that were consulted to gain more information of AWM in Swaziland. The stakeholders provided information of laws, policies and functions of their relevant institutions. The stakeholders interviewed are from the Ministry of Agriculture, Ministry of Natural Resources & Energy, National Water Authority (MNRE), Department of Water Affairs (DWA), Swaziland Water and Agriculture Development Enterprise (SWADE), Ministry of Economic Planning & Development (MEPD), River Basin Authorities (RBAs) and the Swaziland Environment Authority (SEA).

Table 1.1: Mapping of Institutions involved in AWM in Swaziland.

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
Ministry of Agriculture	GL: National N: Public, formal, Non-profit making	To develop and maintain efficient and sustainable agricultural systems that will ensure national and household food security and promote growth in the national economy.	1. Develop policies and programmes to promote agricultural productivity; 2. Enhance food security through increased production per unit area; 3. Provide extension services for livestock and crop production to farmers in the four administrative regions in the country; 4. Provide early warning information to farmers on potential risks on crops and livestock production; 5. Advices farmers on suitable varieties for planting in different eco-regions; 6. Promote commercialization and diversification of crops and livestock production in Swaziland; 7. Ensure animal health of national stocks. 8. Facilitate market access for agricultural produce; 9. Promote fisheries production and commercialization; 10. Carry out applied research on crop diversification and drought tolerant crops. 11. Promote sustainable utilization of land and water resources; 12. Promote and develop rainwater harvesting facilities to increase agricultural productivities for communities.

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Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
Ministry of Natural Resources & Energy	GL: National N: Public, formal, Non-profit making	To ensure the sustainable development, use and management of natural resources by providing adequate services in water, minerals, energy, surveying, mapping, conveyancing, registration of real rights in land and valuation; to the public and private sector in a transparent manner for the socio-economic benefit of the Kingdom of Swaziland.	1. Develop, review and operationalize relevant policies ensuring optimal utilization of natural resources in line with Government priorities; 2. Ensure and facilitate management of land, minerals, water resources and energy; **3.** Ensure optimal development, management and provision of adequate water resources in a sustainable manner**.** 4. Provide facilities for ensuring access to sustainable energy and security of energy supply; 5. Collect and maintain up-to-date database on land and natural resources.
Department of Water Affairs	GL: National N: Public, formal, Non-profit making	To provide adequate water resources at acceptable standards ensuring sustainable use, development and management taking into account the environment.	1. Improve access to adequate and good quality domestic water for citizens in rural areas to achieve 100% coverage by 2022; 2. Increase water resources availability through development of large water resources infrastructure; 3. Increase groundwater access for domestic and primary water utilization; 4. To monitor and manage water resources to ensure compliance with water laws and transboundary agreements and protocols; 5. To establish and operationalize water management institutions to enhance water resources management through stakeholder involvement; 6. Secretariat to the National Water Authority; 7. Carry out an assessment on water resources availability, water utilization and water

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			quality to plan for development of projects within river basins.
The Swaziland Water and Agricultural Development Enterprise (SWADE)	GL: National N: Semi Private, formal, Non-profit making	Development of the Komati Downstream Project Area and the Lower Usuthu Smallholder Irrigation Project and any other large water infrastructure project that Government may assign with the mission to eradicate poverty through agricultural development using water as a catalyst.	1. Management water and agricultural projects supervising the designs, engineering and procurement process with regards to the project; 2. Facilitate agricultural development in project area by assisting in land preparation and irrigation installation; 3. Establish, train and empower small holder farmer companies to undertake agricultural productivity in project area; 4. Facilitate the development of Chiefdom Development Plans within project area; 5. Provide project communities with potable water and sanitation facilities; 6. Facilitate mobilization of funds for undertaking agricultural and water projects as assigned by the Government; 7. Carry out operations and maintenance of infrastructure as assigned by the Government; 8. Technical advisor to the Ministry of Agriculture and the Ministry of Natural Resources & Energy and in the Transboundary Water Commissions of water and agricultural issues.
National Water Authority	GL: National N: Public, formal, Non-profit making	Ensure sustainable utilization, management and development of water resources through policy formulations and developing and updating the water resources master plan and monitoring its	1. Prepare, adopt and update the water resources master plan; 2. Advise on policy directions relating to water; 3. Advice the Minister on the appointment of persons to serve in the Joint Water Commission or any other international water

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
		implementation.	commission; 4. Determine proper management of water infrastructure to ensure safety of people from water related disasters; 5. Develop water regulations (permit application, water pricing, water sport, water quality, dam safety etc.); 6. Oversee the work of the River Basin Authorities and the Department of Water Affairs; 7. Coordinate the work of different boards and water agencies.
River Basin Authorities of Lomati, Komati. Mbuluzi, Usuthu, Ngwavuma.	GL: Basin N: Public, formal, Non-profit making	Ensure efficient utilization of water resources within the river basin and promote stakeholder involvement in water utilization, planning, management and development.	1. Promote efficient water use in the river basin; 2. Keep a data base of basin information, including water availability and water demand data; 3. Issue, amend and renew or suspend water permits; 4. Impose water restrictions on all water users in times of water shortage; 5. Monitor water use and abstractions within river basin; 6. Develop river basin plans; 7. Arbitrate user disputes; 8. Monitor and control water quality and enforce effluent regulation; 9. Upon approval of the NWA, levy and collect water user fees.
Irrigation Districts of Siphofaneni, Emandla Ekuphila & Malkerns	GL: Local N: Public, formal, Non-profit making.	Maintenance and operation of water works in the area of operation and distribute permitted volumes of water according to permit conditions.	1. Ensure efficient water utilization for agriculture and other uses within the local operational area; 2. Monitor water use for all water users within

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			irrigation district; 3. Levy and collect water user charges approved by the River Basin Authority.
Ministry of Economic Planning & Development	GL: National N: Public, formal, Non-profit making	Guide National Development and Planning	1. Develop Government Policy Framework, the National Development Strategy which is the overarching government policy; 2. Advise on policy, programme and projects to be considered for national development; 3. Coordinate and adopt the preparation of the Medium Term Plan (National Development; 4. Allocate financial resources to capital projects in line with the Government Policy and the National Development Plan; 5. Perform economic analyses and determine sector contributions to the national economy; 6. Coordinate and manage foreign aid coming into Swaziland; 7. Monitor and evaluate the implementation of MDGs.
Ministry of Finance	GL: National N: Public, formal, Non-profit making	Ensure that the Government is prudently advised on fiscal matters and macroeconomic stability in Swaziland	1. Develop financial policies and measures that optimize financial growth; 2. Prepare annual estimate and appropriation drafts for all Ministries within government; 3. Monitor consolidated budgets; 4. Oversee the Swaziland revenue collection.
Swaziland Meteorological Services Department	GL: National N: Public, formal, Non-profit making	Provision of Meteorological Services in support of the social and economic development of Swaziland.	1. Provide Meteorology services; 2. Timely collection and dissemination of information on short term, medium range and long range weather and climate forecasts; 3. National Focal Point for Climate Change projects and initiatives in the country.

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
Swaziland Environment Authority	GL: National N: Semi-Autonomous, formal, Non-profit making	Ensure Environmental Protection	1. Formulate policies and regulations on environmental issues; 2. Ensure sustainable management and use of natural resources through protection and conservation of environmental resources such as land, water and bio-systems; 3. Enforcement of environmental laws and regulations; 4. Carry out periodic inspections and monitoring on development undertakings; 5. Monitor trends in the state of the environment; 6. Carry out strategic assessment of policies, programmes and projects on environmental issues; 7. Ensure that new developments undertake Environmental Impact Assessment and develop mitigation measures to protect the environment; 8. Monitor water quality in rivers; 9. Disseminate and facilitate public access to information on the environment.
The Energy Department of the Ministry of Natural Resources & Energy	GL: National N: Public, formal, non - profit making	To effectively and efficiently manage the national energy resources and work towards affordable and sustainable energy provision for all people in Swaziland whilst ensuring international competitiveness of the energy sector.	1. Develop policies and regulations to guide energy issues in the country; 2. Ensuring energy access for all; 3. Stimulating economic growth & development through the provision of reliable energy to the different energy using sectors in the country; 4. Promote energy conservation and efficient utilization of energy; 5. Promote the use of renewable energy; 6. Establish and strengthen the energy

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			governance structures such as the establishment of the Department of Energy and the Swaziland Energy Regulatory Authority; 7. Encourage the generation of hydropower.
Komati Basin Water Authority	GL: National within the Komati River Basin. N: Semi Public, non-profit making, formal	Established by the Republic of South Africa and Swaziland for the development and utilization of the water resources of the Komati River Basin.	1. Design and construct the Driekoppies and Maguga dam and related works such as gauging stations within the Komati Basin; 2. Develop and implement operating rules to guide releases and impoundment of water in the two dams; 3. Operate and maintain the Driekoppies and Maguga dams ensuring that requested water allocations are releases to the farmers and other water users timeously; 4. Ensure that transboundary obligations are met; 5. Data collection and dissemination to stakeholders; 6. Ensure dam safety measures are in place to minimize losses due to floods.
University of Swaziland	GL: National N: Semi - public, formal, non -profit making.	To produce highly skilled human resources needed by the Kingdom of Swaziland and the global community.	1. Teach and empower students with skills within the various fields of study offered within the university; 2. Conduct research and publish findings in academic journals; 3. Present academic papers at national, regional and international levels; 4. Pursue linkages with other institutions of higher learning locally, regionally and internationally in teaching, research and community service to enrich the academic and professional programmes;

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			5. Conduct fundraising initiatives through the UNISWA Foundation.
Swaziland Sugar Association	GL: National N: Private, non-profit making.	To regulate, promote and foster the sugar industry in Swaziland.	1. Provide services to develop the sugar industry and market its products to get maximum returns; 2. Provides technical services to assist the industry and farmers to produce good quality sugarcane.
World Vision	GL: National N: Non-governmental organization, non-profit making.	Improve livelihoods of vulnerable communities through improvement of agriculture and water security.	1. Support the construction of rain water harvesting technologies; 2. Builds capacity of farmers to undertake agricultural activities; 3. Support community based irrigation projects.
European Union (EU)	GL: International N: Non-governmental organization, non-profit making.	The EU – Swaziland cooperation is aimed at contributing to the poverty reduction effort and social stability through inclusive growth, income generation, rural development and environmental sustainability.	1. Provide financial and technical support for water supply and sanitation and agricultural development; 2. Promote environmentally sound agricultural practices with emphasis of eradicating poverty and food insecurity; 3. Support the adaptation of the sugar sector with special attention to increase competitiveness of small holder growers; 4. Promote broad based stakeholder consultations and participation to improve delivery of direct benefits; 5. Support programs on the development of small and medium size dams;

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			6. Assisted the government in partial funding to LUSIP 1, concentrating on project management and designs.
United Nations Development Programme	GL: International N: Non-governmental organization, non-profit making.	Promote sustainable development and ensure optimum utilization of natural resources to improve livelihoods.	1. Support capacity building and human resources development in the water and agriculture sector; 2. Support stakeholder participation in water and agriculture sector; 3. Strengthen institutional performance for access to basic service delivery; 4. Promote gender equality and women empowerment; 5. Reduce risks to water related disasters and facilitate early recovery; 6. Support the operation of the agriculture sector working group.
Food and Agriculture Organization of the United Nations (FAO)	GL: International N: Non-governmental organization, non-profit making.	Achieving food security for all – To make sure that people have enough high quality food to lead active healthy lives.	1. Improve food security in the vulnerable areas in the country; 2. To make agriculture, fisheries and forestry more productive and sustainable; 3. Increase resilience of livelihoods to disasters; 4. Provide financial support for agricultural projects and programmes to improve agriculture and to build a food secure nation; 5. Support economic diversification through well targeted studies and pilot interventions to assist farmers to improve productivity and

Step 1.1: Mapping of Swaziland AWM institutions			
Institutions/actors	**Geographical level (GL) Nature (N)**	**Mandate (AWM related)**	**Functions (AWM related)**
			incomes; 6. Support programmes to reduce impacts of HIV/AIDS.

Conclusion

The institutions that have been mapped in this exercise include government ministries and departments (MOA, MNRE, MEPD, MOF), parastatals such as SWADE and SEA, Civil Society organisations (e.g. World Vision), United Nations agencies (UNDP, FAO), Development partners (European Union) and the academic organisations (UNISWA).

The government ministries have a role of developing policies and the relevant legislation to guide the AWM sector. These institutions are also involved in the implementation of some of the programmes and projects in the sector. Also important to note about the government institutions is the development of plans that guide implementation of projects at a national level such as the development of the National Development Plan by MEPD. It is worth noting that the government through MEPD and the MOF are supportive to programmes in the AWM as some national agricultural projects have been included in the national plans and are allocated funds from the national budget.

Parastatals such as SWADE are implementing agencies in the sector and are able to facilitate faster development of government projects and programmes. Other implementing institutions include the civil society organisation whose main target is to improve the livelihood of vulnerable communities. The implementation role of the various organisations together with the role of implementation of government ministries sometimes results in overlaps thus coordination of work between the institutions becomes very important.

Authorities such as the Swaziland Environment Authority and the National Water Authority are involved in influencing policy development and supporting the policy and legislative development initiatives by ministries. These authorities play another critical role in enforcing the regulatory measures for AWM to ensure sustainable utilisation of environmental resources. The local level river basin institutions will enhance the enforcement of regulatory measures and monitoring use of resources due to their geographical location and area of operation.

The development partners and United Nations agencies play an important role of funding AWM projects at both local and national level with a focus on the improvement of livelihoods for the vulnerable communities.

1.2 Legal and regulatory frameworks

The development of laws in Swaziland is mostly initiated by the responsible Ministry. In the development of the legislation, the Ministry will solicit stakeholder inputs and once the legislative document (Bill) has been developed, it is then taken for legal clearance and alignment at the Attorney General's office within the Ministry of Justice and Constitutional Affairs. The Bill is then taken for approval by Cabinet and then taken to Parliament for passing into law.

There are several relevant primary legislations involved in agricultural water related activities in Swaziland. These include the Natural Resources Act (1951), the Plant Control Act (1981), Environment Management Act (2002), the Water Act (2003), the Protection of Fresh Water Fish (1937), the Forest Preservation Act (1907), and Electricity Act (2007).

The Swaziland Environmental Authority was able to put together a compendium of environmental laws in Swaziland, a document that became very useful in this study to map the existing laws and regulations that govern the use and management of natural resources in AWM. Going through the available laws, it became apparent that the available laws have a mandate to conserve and manage the water, land, and environmental resources. In the analysis of the legislative documents, the main areas that were studied included noting the main goal of the law, the specific objectives and the measures that have been put in place to help attain the targets. Table 2.1 below is a summary of the mapping of the legal and regulatory framework used in AWM.

Table 1.2: Mapping of Legal and Regulatory Framework used in AWM

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
Electricity Act, 2007	To reform and consolidate the regulation of generation, distribution and supply of electricity.	1. To regulate the electricity supply industry through licensing of power generation, transmission, distribution, importing and supplying electricity; 2. Ensure improved access to electricity for all citizens.	1. Establishes the Swaziland Regulatory Authority to regulate the electricity industry in Swaziland; 2. Open the market for the generation, distribution and supply of electricity; 3. Setting of standards for supply, operation and distribution of electricity; 4. Set and review tariffs chosen by the Swaziland Energy Regulatory Authority; 5. Open the use of transmission lines to all users at the payment of a fee; 6. Allows Minister responsible for energy shall prepare a rural electrification plan; 7. Establishes an electricity disputes tribunal.
The Energy Regulatory Act, 2007	To establish the Energy Regulatory Authority and to provide for matters incidental to that Authority.	1. Establish an Energy Regulatory Authority; 2. To regulate and ensure compliance with issued licenses; 3. To regulate tariffs.	1. Develop and enforce performance standards; 2. Promote consumer awareness in the energy sector; 3. To investigate tariff changes and promote the interest of consumers; 4. To enable fair competition within the energy sector.
Swaziland Electricity Company Act, 2007	To provide for the establishment of the Swaziland Electricity Company relating to the generation, transmission, distribution and supply of electricity.	1. To transform the Swaziland Electricity Board to the Swaziland Electricity Company; 2. Enable the smooth transition from having a sole electricity supplier to the open market; 3. To comply with the promulgations of the Electricity Act, 2007.	1. Enabled the transition of the Swaziland Electricity Board to Swaziland Electricity Company to include assets, liabilities, obligations and personnel; 2. Establishment of a Board of Directors to govern SEC.

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
Water Act, 2003	Efficient utilization, management and development of water resources.	1. Decentralize water resource management to river basin institutions; 2. Encourage stakeholder participation; 3. Integrated planning for the use of water resources through development and periodic review of the Water Resources Master Plan; 4. Improve transboundary water management; 5. Promote efficiency in water use; 6. Improve development for water resources and facilitate equitable allocation of water.	1. Establishment of the National Water Authority; 2. Development of a Water Resources Master Plan; 3. Establishment of the River Basin Authorities and Irrigation Districts; 4. Establishment and implementation water pricing regulation; 5. Construct new water storage infrastructure; 6. Installation of water measuring devices to account for water use within the river systems; 7. Carrying out water use surveys to update the water use registry within the 5 river basins; 8. Develop and enforce water quality standards; 9. Promote multiple use of water storage infrastructure.
Flora Protection Act, 2001	To protect indigenous flora and to provide for matters incidental thereto.	1. Protection of indigenous plant species; 2. Control export of protected flora; 3. Prevention of unauthorized entry into botanical gardens or special habitats; 4. Prevention of the sale of protected plants.	1. Protect species specified in schedule; 2. Permits required to control the picking up, digging, cutting and uprooting protected flora; 3. Carrying out of Environmental impact assessment before carrying out any project to protect indigenous flora; 4. Determination of penalties for contravening the law.
Environment Management Act, 2002	To provide and promote enhancement, protection and conservation of the environment and the sustainable management of natural resources.	1. Prevention and minimization of adverse effects on the environment that may be caused by any activity or	1. Establishes SEA as a body corporate; 2. Development and updating an environmental management strategy for every ministry; 3. Establishment of the Swaziland Environmental Fund to promote the

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
		project through long term integrated planning and the coordination; 2. Application of the polluter pays principle, which requires that those causing adverse effects shall be required to pay the full social and environmental costs of avoiding, mitigating, and/or remedying those adverse effects; 3. Encourage minimization of waste as far as is possible; 4. Promote sustainable use of natural resources such as land and water taking into account the consequences for the present and future generations.	conservation, protection and enhancement of natural resources of Swaziland; 4. Publish the state of the environment report every two years; 5. Prepare, publish and review an environmental action plan; 6. Every project (including agricultural projects) shall require a written approval from the Swaziland Environment Authority before it is implemented; 7. Projects that will cause significant harm to the environment are required to undertake an environmental impact assessment (EIA) and a comprehensive mitigation plan before getting approval to continue with implementation; 8. Development of regulations on EIA, pollution control & waste management; 9. Determination of pollution fees payable by any polluting person; 10. Enable public participation in environment and development issues; 11. Undertake inspections on activities and projects to monitor environmental compliance.
The Constitution of the Kingdom of Swaziland, 2005	Promotes environmental protection and equitable access to environmental resources.	1. Protection and rational use of land, mineral and water resources as well as fauna and flora; 2. Foster conservation and improvement the environment; 3. There shall be no private right of property in any	1. Enactment of legislation and domestication of treaties that promote environmental protection, conservation and provide for equitable access to the country's water resources.

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
		water found naturally in Swaziland.	
The Plant Control Act, 1981.	To control the movement and growing of plants and matters incidental thereto.	1. Establishes a Nursery Registration Board; 2. Regulates the sale and movement of plants; 3. Gives authority for the compulsory destruction of alien plants; 4. No importation of prohibited plants; 5. Imports of plants from other countries shall require a permit.	1. Every nursery owner must apply to the Nursery Board and pay application fees; 2. Establishes inspectors to determine the presences on insect pests or the presence of plant disease; 3. Quarantine areas with pests and diseases; 4. Destruction of alien plants; 5. Prohibited plants listed in first schedule attached to the Act; 6. Gives responsibility to every land owner to clear noxious weed on the land; 7. Determination of fines for persons contravening the law (Fines not exceeding E500 or imprisonment not more than 6 months).
The Private Forests Act, 1951.	To provide better regulation and protection of private forests in Swaziland.	1. Determines preventative measures to forest fires.	1. Establishes firebreaks; 2. Establishes non entry of unauthorized persons into private forests; 3. Prevents persons from starting fire in forest areas.
The Natural Resources Act, 1951.	To provide for the conservation and improvement of natural resources and for any other matters incidental thereto.	1. Establishes the Natural Resources Board to oversee for the protection, conservation and improvement of natural resources; 2. Enable for the development of laws,	1. Promotes the acquisition of land for conservation or improvement of natural resources; 2. Land owners given responsibility to take the necessary steps and invest in infrastructure for the conservation of water, land and vegetation; 3. Allows for establishment of conservation

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
		policies and regulations to guide the conservation, protection and improvement of natural resources; 3. Promote the conservation of soil, water and vegetation.	areas and conservation committees; 4. Board may issue orders to land owner to adopt or undertake measures necessary for the conservation and protection of the use of natural resources and fees for the remedial work is to be paid by land owner.
The Natural Resources (Public Stream Banks) Regulation, 1951.	Prevent cultivation of crops within the stream banks	1. Prevent cultivation of crops within 100 feet (33 meters) from the banks of public streams; 2. Protect destruction of biodiversity rich ecosystems close to the river banks.	1. Conduct regular inspections; 2. Carry out environmental audits; 3. Enforcements through fines and imprisonment.
Protection of Fresh Water Fish, 1937	For the protection of freshwater fish.	1. Regulation of exploitation of fish through issuance of fishing permits; 2. Protects fish spawn and fish food; 3. Regulates importation of fish into Swaziland; 4. Regulates the stocking of national waters.	1. The Minister may determine closed seasons where fishing is prohibited; 2. Regulate the use of fishing gear; 3. No obstruction in any waters that will prevent the free passage of fish; 4. Prevention of pollution that will destroy fish life; 5. Contravening the law results in E100 fine of 3 months imprisonment.
Fresh Water Fish Regulations, 1973.	For the regulation of fishing for one type of fish (Black bass).	1. To regulate the stocking of waters with fish or the removal of fish from any body of water.	1. Applications for cultivation of fish through the Ministry of Agriculture; 2. Fish permit application for fishing for commercial purposes; 3. Sport fishing requires a permit; 4. Permit duration is 12 months.

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
The Forest Preservation Act, 1907.	To make provision for the preservation of trees and forests growing on Government land and on Swazi Nation Land.	1. Protection of indigenous timber growing on Swazi Nation Land or Government land.	1. Prevention of negligent cutting of trees without a permit; 2. Prevent the selling of indigenous trees without permission; 3. Prevent the negligence of forest fires on indigenous trees.
Waste Regulations, 2000	To regulate the management of solid waste and liquid wastes disposed of on land, are binding on the State.	1. Regulate the disposal of different types of waste products; 2. Prohibit the importation of hazardous waste.	1. Preparation of a waste strategy; 2. Classification of waste into different categories e.g. hazardous waste, clinical waste, household waste, commercial, industrial etc.; 3. Gives local authorities responsibility for waste collection and disposal within their areas of jurisdiction; 4. Setting of minimum standards for the establishments of new landfill sites; 5. Development of a consignment note to collect information on the disposal of special waste. 6. Determined list for hazardous waste material. 7. Regulation of the development and operation of waste disposal sites. 8. Introduction of waste management licenses.
The Ozone depleting Substances Regulation, 2003.	To regulate the production, trade and use of controlled substances and products.	1. Ensure the elimination of substances that deplete the ozone layer; 2. Provide a system of data collection that will facilitate compliance with relevant reporting requirements of the related environmental protocols;	1. Issuance of licenses for importing, exporting and storing controlled substances; 2. Carrying out inspections at premises, place or vehicle where controlled substance is stored. 3. Determine and charge a pollution tax on importers of controlled substances; 4. Schedule provided for controlled substances to be monitored.

Step 1.2: mapping of legislation and regulations for AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
		3. Promote the use of ozone friendly substances.	
The Water Pollution Control Regulations, 2010	To control discharges made into water bodies.	1. Outline responsibilities for operators, water authorities and the SEA in water pollution control.	1. Routine discharges to be sampled, tested and results submitted to the SEA; 2. Procedure of reporting of accidental discharges outlined; 3. Water quality objectives provided; 4. Effluent standards provided.
Environmental Audit Assessment and Review Regulations, 2000	To control adverse environmental effects of development	1. Promote the integration of environmental management to economic and social development.	1. Provides Classification of new developments to 3 categories; 2. Provides outline for EIA process; 3. Provides outline for Environmental Audits of existing operations; 4. Indicative list of projects in the 3 categories provided; 5. Outlines of reports to be prepared under these regulations provided.

Conclusion

The primary legislation in the sector is mainly focused on regulatory measures that minimise the destructive use of natural resources. An example of this is the Flora Protection Act (2001) which serves to protect indigenous plants through the establishment of protection areas and prevention of sale of such plants. The Plant Control Act (1981) serves to prevent the spread of alien invasive plants and to regulate the movement and sale of plants. The Public Stream Banks Regulation sets a minimum distance to water banks for cultivation to minimise siltation of rivers, and pollution from the use of agrochemicals as well as protection of biodiversity near the water systems.

The newer laws starting from the year 2000 onwards have more inclination to institutional reforms, stakeholder participation and the issues of pricing. An example is the Environmental Management Act (2002) which established the SEA as a parastatal and then develops the concepts of carrying out an EIA for projects. The EIA process that is described in the law is participatory in approach. In cases where there has been degradation of the environmental resources, there are rehabilitation fees payable to restore the environment. The Water Act (2003) establishes the National Water Authority and decentralises water management to river basin institutions. The Act also calls for the development of a water pricing policy to encourage efficient utilisation of water as well as to support the established institutions. Lastly, the Electricity Act (2007) establishes an Energy Regulatory Authority and opens the market for generation, distribution and sale of electricity.

However, gaps are identified in the legislation for the AWM sector in that there is no Agriculture Act or an Irrigation Act or even a Food Security Act. The Acts within MOA are on regulation of natural resources such as fish to prevent over exploitation and ensure conservation.

1.3 Policies and processes

There are several policies on-going and in the pipeline to govern the AWM sector as well as the energy sector in Swaziland. The country has been quite active in the development of policies and examples including the Comprehensive Agriculture Sector Policy, Irrigation Policy, Livestock Development Policy, National Rural Resettlement Policy, Forestry Policy, National Food Security Policy, Agriculture Research Policy, Draft National Water Policy and the Fresh Water Fisheries and Aquaculture Policy. There is also the development of strategies and plans such as the Integrated Water Resources Master Plan, the draft National Climate Change Strategy and Action Plan and the draft Swaziland National Agriculture Investment Plan.

The policies are aiming at institutional reforms, increasing stakeholder participation, encourage the development of water storage infrastructure to increase irrigation efforts, increasing efficient utilization of water resources and to build capacity in the sector. Table 3 below shows the mapping of policies within the AWM sector in Swaziland.

Table 1.3: Mapping of Policies in AWM

Step 1.3: mapping of policies in AWM			
Legislation	**Goal / Mission / Principle**	**Specific Targets**	**Measures to attain targets**
Livestock Development Policy, 1995	To increase levels of animal fertility, promote self-reliance through diversification and make livestock production profitable.	1. Promote coordination within the livestock industry; 2. Improve rangeland management and utilization; 3. Prevent the spread of animal diseases; Promote intensive production systems for smallholder livestock farmers.	1. Develop and facilitate programmes on rangeland management such as bush clearing, fencing and prevention of soil erosion; 2. Facilitate livestock marketing; 3. Promote small holder livestock enterprises though training and improving access to finances; 4. Improve national herd through selection, breeding and protecting the indigenous pool; 5. Promote the use of supplementary feeding; 1. Improve disease control, surveillance, and diagnostic efficiency and the delivery of animal health care services.
Swaziland Environment Action Plan, 1997	To put in place a cross-sectoral approach to environmental management in Swaziland.	1. Provide knowledge overview of environmental conditions in Swaziland; 2. Identify, prioritize and where possible quantify environmental problems; 3. Propose solutions to environmental problems; 4. Establish a framework environmental monitoring and action planning;	1. Compilation of the State of the Environment Report; 2. Setting up of five cross sectoral committees according to put together plans and set priorities for better environmental management.
Forestry Policy, 2002	Achieve efficient, profitable and sustainable management and utilization of forest resources for the benefit of the entire society and to increase the role of forestry in environmental protection and conservation.	1. To improve forest productivity and ensure a sustainable supply of multiple forest products; 2. To conserve the biodiversity of forest resources; 3. Ensure equitable sharing of the benefits accrued	1. Establish programmes to remove and control alien invasive species; 2. Strengthen the afforestation and reforestation programme; 3. Incorporation of forestry management matters in urban development plans; 4. Promote the protection of green belts, wetlands and special habitats; 5. Call for the development of fire management

		from forest resources; 4. Enhance the national capacity to manage and develop the forestry sector.	practices to control the devastation of forests by uncontrolled forest fires; *6.* Encourages co-operation of plantation owners with other landowners and users in overall watershed management; 7. Communities given responsibility to manage communal forests for their benefits.
National Rural Resettlement Policy, 2003.	To establish a durable, practical and participatory framework for planning and management of land for agricultural productivity, environmental sustainability and clustering of households for efficient provision of infrastructure and services.	1. Ensure fair participation and appropriate treatment to displaced communities; 2. Ensure equitable, orderly, legitimate and transparent land allocation for displaced communities; 3. Ensure optimal utilization of land by rural communities; 4. Assist communities to identify land use strategies and resettlement models.	1. Encourage the development of a resettlement plan to guide any resettlement process; 2. Promote Compulsory social and environmental impact assessment before undertaking project; 3. Compensation to be paid in kind rather than cash compensation; 4. Encourages the development of land use plans; 5. Requirement for a monitoring and evaluation programmes for projects.
Comprehensive Agriculture Sector Policy, 2005	Ensure optimum contribution of the agriculture sector to the socio-economic development of the country through intensifying and diversifying agricultural productivity in accordance with good water and land management practices.	1. To increase agricultural output and productivity; 2. To increase earnings of those engaged in agriculture by promoting the adoption of diversification and use of appropriate technology; 3. To stabilize agricultural markets; 4. To ensure sustainable use and management of land and water resources; 5. To enhance food security.	1. Improve the mechanization of rain fed agriculture and involving the private sector for efficiency in service delivery of mechanization; 2. Expand land under irrigated agriculture; 3. Continuous development of large water and irrigation infrastructure; 4. Develop programmes to protect wetlands, catchment areas and communal grazing areas; 5. Liberalize the maize market; 6. Promote and build capacity for small holder farmers; 7. Improve animal health through efficient delivery of veterinary services.

Irrigation Policy, 2005	To provide clear guidance on the development and enhancement of irrigation systems in order to expand land under irrigation and improve agricultural water management.	1. Guide irrigation development; 2. Improve current management and operation of existing irrigation schemes for efficient water utilization; 3. Empowerment of smallholder irrigators on Swazi Nation Land. 4. Increase investment in the irrigation sub sector.	1. Enforce soil conservation measures in irrigated areas; 2. Encouraged the use of water efficient irrigation systems; 3. Expand land under irrigation. 4. Monitoring of irrigation schemes to evaluate application of irrigation guidelines; 5. Assist farmers with capital funding for installation of efficient irrigation systems.
National Food Security Policy, 2005	To ensure that all people in Swaziland at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.	1. Promote and undertake applied agricultural research to promote food security; 2. Improve agricultural market systems and infrastructure and have prices determined by free market forces; 3. Facilitate smallholder farmer access to agricultural inputs and credit; 4. Promote alternative livelihoods in rural areas; 5. Improve food storage facilities; 6. Enhance environmental management to support increased food production and food security; 7. Strengthen national Response to react to drought and improve preparedness and	1. Develop a food security strategy and action plan; 2. Establish an early warning and food security unit; 3. Establish a consultative committee on food security; 4. Mobilization of funds to support food security initiatives; 5. Undertake data collection and analysis to provide information on food and nutrition levels in the country on time and accurately to enable informed decision making.

		response to drought and other disasters; 8. Promote the participation of communities and women in agricultural production, processing and marketing of produce.	
Poverty Reduction Strategy and action Plan, 2006	To the incidence of absolute poverty from 69% in 2001 to 30% in 2015 and to totally eradicate it by 2022.	1. Empower the poor to participate actively in development initiatives; 2. Fair distribution of benefits through the fiscal policy; 3. Improve access to land; 4. Promote human capital development; 5. Improving governance and strengthening of institutions.	1. Vigorous campaigns to attract foreign investment; 2. Infrastructure development; 3. Commercialization of agriculture on Swazi Nation Land; 4. Increase agribusiness opportunities; 5. Improve access to water for agricultural purposes; 6. Promote the use of Government farms for agricultural productivity; 7. Improve farming methods to increase agricultural productivity.
Draft National Climate Change Strategy and Action Plan, 2014	To enhance the adaptive capacity of Swaziland to climate change in order to achieve sustainable development and contribute to the better quality of life for the Swazi nation.	1. Integrate climate change adaptive and mitigation measures into the various sectoral policies and national development planning and budgeting; 2. Promote development and implementation of adaptation and mitigation actions that contribute to achievement of sustainable development, eradication of poverty and enhance adaptive capacity; 3. Provide mechanisms for mobilizing and accessing support for capacity	1. Mainstream climate change issues in the national development and sectoral planning processes and budget; 2. Promote adoption of sustainable land management practices such as soil management, seed management, changing planting and harvesting times and post-harvesting management; 3. Promote rainwater harvesting for crop and livestock production to increase the buffer and adaptive capacity of smallholder farmers; 4. Develop national knowledge base on climate change impacts and adaptation strategies; 5. Improve agricultural advisory services and information systems; 6. Strengthen weather forecast information

		building, transfer of technology and financial resources from the international community and other sources; 4. Build awareness and understanding of climate change; 5. Strengthen the legal and institutional framework for effective coordination and implementation of climate change adaptation and mitigation actions, programmes and initiatives.	sharing for farmers; 7. Develop legal and institutional framework for the establishment of the National Climate Fund that meet the international requirements of receiving, controlling and disbursing climate finance; 8. Establish an inter-ministerial committee on climate change to ensure cross- and inter-sectoral coordination and policy integration of climate change issues into sectoral policies, programmes and plans.
National Water Policy (draft) 2011	To achieve sustainable development and management of water resources in the country through integrated planning.	1. To promote integrated planning, development and management of water resources with particular emphasis on the roles and responsibilities of stakeholders; 2. To increase access to water for previously deprived sectors without prejudicing existing water users; 3. To ensure provision of adequate and good quality water for all and accessible to all citizens; 4. To ensure that transboundary obligations are met at all times.	1. Water allocation shall consider the socio-economic benefits to the country; 2. Water permits shall be issued and monitored by River Basin Authorities; 3. Encourage water use efficiency in all sectors through introduction of water user fees; 4. Participatory approaches are encouraged at all levels through the establishment of water institutions at local level, basin level and national level; 5. Encourages the development of water storage infrastructure to support agriculture and other economic sectors; 6. Encourages multiple uses of dams; 7. Groundwater use is limited to domestic and primary purposes and not for commercial irrigation; 8. Determines the water rationing procedure to be followed in case of drought; 9. Calls for the designation of flood plains to ensure public safety from flood disasters; 10. Encourages the development of disaster

			management plans for all major dams.
Agriculture Research Policy, 2011	To create an enabling environment for the National Agricultural Research System to be efficient, effective, responsive to demand and produce research and products which are relevant to the defined national priorities.	1. To restructure the National Agricultural Research System through the establishment of a semi-autonomous government agency known as the National Agricultural Research Authority (NARA); 2. To coordinate and supervise all agricultural research in the country; 3. To ensure improved, participatory and strategy driven responsive research for agricultural development in the country.	1. Develop an institutional framework to facilitate stakeholder participation in the agricultural research processes; 2. Establish working relationships with specialists in the fields within the agriculture and water sector; 3. Undertake resource mobilization initiatives through the establishment and operationalization of an agricultural research trust fund; 4. Establish information processing and dissemination systems and platforms; 5. Acquisition of technologies and equipment for undertaking research; 6. Develop research programmes that constitute the national agenda.
Fresh Water Fisheries and Aquaculture Policy in Swaziland, 2011	To ensure sustainable and regulated access to fish resources in order to achieve an equitable balance between socio economic needs and ecosystems health.	1. Promote an efficient, effective and sustainable fish farming; 2. Support the development of small scale commercial and intensive fish farming; 3. Encourage fish consumption to improve nutrition for the people; 4. Operationalize a fish hatchery; 5. Support women to establish fish farms.	1. Support training of staff within the fisheries sector; 2. Development of guidelines and manuals on fish farming; 3. Update the fisheries laws and regulations; 4. Improve the management of watershed areas; 5. Determine reasonable annual permit fees for fish farming and sport fishing; 6. Develop reporting mechanisms for fisheries caught in the river systems; 7. Provision of fingerlings at highly subsidized costs to encourage fish farming; 8. Provision of technical extension services to support fish farming;

			9. Develop and operationalize a hatchery to encourage extensive fish farming.
Integrated Water Resources Master Plan, 2011.	To provide strategic direction on how best to utilize, manage and develop water resources to facilitate social and economic development that will improve the livelihoods for the people of Swaziland.	1. Provide relevant information on water situation for planning purposes (surface water flows, ground water potential, water quality information, water use information); 2. Determine the water balance for all rivers in the country; 3. Provide guidelines for the development and management of water resources; 4. Increase water availability for domestic purposes, agriculture water use and other water uses.	1. Define a water allocation criteria; 2. Carry out periodic water assessments and water use surveys per river basin; 3. Promote stakeholder consultation for integrated planning for current and future water requirements; 4. Development of river basin plans to feed into the updating of the water resources master plan; 5. Identify and prioritize the development of water infrastructure to increase water supply for irrigation and other water uses; 5. Develop a plan of action for specific water management and development activities; 6. Provide guidelines on equitable and sustainable water use.
Draft Summary report on the Swaziland National Agricultural Investment Plan, 2014.	To increase the contribution of agriculture to economic development, reduce poverty and improve food and nutrition security.	1. Achieve 6% agricultural GDP growth; 2. Reduce poverty prevalence from 73% to 59%; 3. Get 10% support from national budget allocated for agricultural development; 4. Reduce stunting of children less than five years of age from 31% to 15%; 5. Increase number of	1. Development of 5 programmes for investment in the next ten years (Sustainable natural resources management, Improve access to markets, Food supply and reducing hunger, Agriculture research , extension, training and education and Knowledge management and communication); 2. Encourage rainwater harvesting at different levels to increase water availability for agricultural purposes; 3. Encourage rehabilitation and environmental conservation; 4. Promote sustainable utilization of other natural resources such as forestry, fisheries

		people employed in the agriculture sector; 6. Ensure optimal utilization of natural resources; 7. Improve access to markets; 8. Increase agricultural productivity to improve food security; 9. Improve agricultural knowledge management to enhance planning.	and natural genetic resources; 5. Intensify staple food production, livestock production and vegetable production through support to farmers on farming inputs; 6. Undertake and equip farmers on climate change adaptation and mitigation strategies; 7. Undertake a monitoring and evaluation exercise.
Draft Land Policy (drafted in 2000, redrafted in 2013).	To encourage rational and sustainable use of land and improve access and management of land resources.	1. Improve access to land and secure tenure; 2. Improve productivity, income and living conditions to alleviate poverty; 3. Enhance efficient and effective land administration systems; 4. Encourage ownership by Swazi citizens.	1. Encourage community participation, accountability and gender equity; 2. Promotes land utilization and leasing of unutilized land parcels; 3. Encourages compensation for expropriation of land ownership.
Draft National Climate Change Strategy and Action Plan, 2014.	To provide a systematic approach to deal with climate change through adaptation and mitigation in a manner that contributes to achieve sustainable development and eradication of poverty.	1. Promote development and implementation of adaptation and mitigation actions; 2. Provide mechanisms for mobilizing of financial resources; 3. Build awareness and understanding of climate change; 4. Strengthen the institutional framework for effective coordination.	1. Promote low carbon investments in key sectors; 2. Provide incentives to encourage investment in cleaner technologies; 3. Enhance adoption of sustainable natural resources practices; 4. Mainstream climate change in agricultural, water and energy policies, strategies and programmes; 5. Strengthen national capacity to prepare and respond to disasters; 6. Formulate and adopt a climate change policy; 7. Establishment of inter-ministerial committees;

			8. Enhance resource mobilization on climate change issues.

Conclusion

The country has been quite active in the development of policies in the agriculture and water sector. The policies are addressing some of the important aspects within the sector such as participatory approaches, economic measures as well as encouraging investment in the development of infrastructure to improve the AWM sector. However, the development of guidelines within policies, which is critical in order to operationalize some of the stipulations of the policies in order to effectively guide the sector, is insufficient.

Some policies such as the Livestock Development Policy in 1995 and the Forestry Policy in 2002were developed a while ago, but there is no mention on when the development of the relevant laws will be done in order to be able to implement and enforce some of the pronouncements that are required to improve the sector. The water policy is an important policy yet it lies in draft since 2011, there is thus need to finalise the drafting of a variety of laws such as the National Water Policy.

STEP 2 - DIAGNOSTIC EXERCISE: ASSESSING PERFORMANCE OF INSTUTIONS, LEGAL FRAMEWORKS & POLICIES

This section covers on governance issues and analyses the effectiveness and efficiency of legal, policy and institutional frameworks and processes in AWM in Swaziland. In this analysis, a number of key issues are identified including actions and reforms needed to improve the performance of the agricultural water sector in Swaziland.

The analysis was guided by answering a set of questions through both quantitative/qualitative indicators and is organized in Tables 2.1a and 2.1b. This has led to the assessment of major capacity and effectiveness bottlenecks/opportunities for strengthening institutions, legal environment and policies, as well as of readiness/resistance to change by the different institutions/actors. The assessment also includes broad indications on the balance/relation between formal and informal aspects within the water sector and on the internal/external power relations energizing such systems. Step 2, thus, allows to identify inputs and outputs getting in/out of the sector and to assess whether they are adequate.

2.1 Institutions and actors

Five institutions were identified in this study as key institutions of the AWM sector. These institutions are MOA, DWA, SWADE, MEPD and SEA.

The analysis in this assessment covered areas on effectiveness in carrying out responsibilities, governance issues and capacity levels of institutions.

The aspects covered within the three thematic areas of the assessment were as follows:

1. Effectiveness in carrying out mandate, responsibility and functions – The assessment was based on leadership style, availability of strategy, implementation of strategy, appraisal and reward system for staff members, availability of performance indicators, internal relationships and coordination mechanisms, monitoring and evaluation mechanism;

2. Assessment of human, financial and technical capacity of institutions - what are the resources available of the institution to carry out its mandate (i.e. number of staff members, technical expertise, sources of funding, budget allocation and expenditure)?
3. Governance and stakeholder relationships – the assessment criteria included are transparency, involvement of stakeholders, decentralisation of activities, community empowerment, equitable allocation of resources and efficiency in carrying out assignments as well as the availability and accessibility of data and information.

The results of the assessment criteria have been provided in Table 2.1 on the next page.

Table 2.1a: Diagnostics exercise of institutional performance

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
Ministry of Agriculture (Political Leadership)	Has developed policies to guide the agriculture sector. Existence of the Swaziland National Agricultural Investment Plan which gives strategy on how to concentrate efforts to improve agricultural development. Construction of earth dams to improve water availability for community small scale garden irrigation projects. Availability of a plan of action 2013 – 2018.	Availability of policy documents to guide the agricultural water management sector. There is alignment of policies in agriculture with policies in water resources management and these are linked to the National Development Strategy. Extension service system has poor physical, operational and communication infrastructure. The Rural Development Areas are in a dilapidated state in many areas. Uncoordinated	Available profile of management staff. Performance appraisal systems available but not fully implemented. No incentives for good performing staff.	Cooperating partners and developmen t partners support some programmes in the sector. Low proportion of national budget is allocated for agriculture, (4% in 2013/2014 financial year). Government budget allocation for operational	Inadequate linkages between sections in agriculture e.g. linkage between research and extension services not efficient. Some areas of research are not fully covered for research e.g. livestock research. Local availability of tertiary institutions to train professionals	Inadequate linkages between the Ministry and farmers to inform demand driven research. No clear established stakeholder consultation forums. Availability of three step programme identifying actions and giving targets to Cabinet on what the Ministry will carry out on short term,	No feedback mechanism from stakeholders on service provision. There is no formal and regular system for getting critical issues from farmers. Bureaucratic systems in government which slows down project implementati on. Lack of clear	The use of parastatals in projects to improve service delivery.

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
	Increasing area for sugarcane irrigation.	research which is not demand driven. No coordinated data and knowledge management systems. Use of old technologies and equipment in implementing or conducting programmes. Inadequate enforcement of policies directive to improve agricultural development.		expenses is very low and is reduced annually. Inadequatel y resourced extension services. Lengthy procuremen t process which slows down the implementat ion of projects and reduces expenditure rate of given resources.	on agricultural fields. Lack of capacity in some important sections within the Ministry such as in extension and research sections, e.g. some staff members staff lack computer skills and information management skills. Some technical	medium term and long term. Reporting mechanism is available to monitor progress. Need to improve coordination and linkages on issues of natural resources management with other key stakeholder institutions. Agriculture sector working group not fully operational. Decentralisation	ownership of AWM issue, agriculture and water are in two separate ministries. Limited partnerships with the private sector to assist government in carrying out or managing some of the projects.	

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
					fields are not represented in the Ministry e.g. an agribusiness promotion department with the required personnel. Climate change issues not fully integrated when implementing interventions. No monitoring and adaptation system to offer comprehensive evaluations	through RDAs but not very effective. Inadequate communication systems with farmers.		

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
					of projects and programme.			
Department of Water Affairs **(Political leadership)**	Reforms in policies and institution with regards to agriculture water management. Increased attention to water resources development for agriculture purposes. Establishment of water management institutions at different levels from local, sub basin level and national level. Plays double roles of water regulator as well as water service provider.	Inadequate support to basin institutions. Pricing regulations and other developed regulations not yet gazetted thus non enforceable. Inadequate enforcement of laws and regulations. Inadequate enforcement of water meter installations for irrigation and other water users. Poor data and information management systems thus data is scattered, not	Organogram available. Some necessary skills are in short supply e.g. water engineers. Inefficient staff retention system thus high exodus of experienced staff. Non availability technician programmes locally for	Financial resources mainly provided by the government. Other sources of financing institutions include cooperating partners especially for water supply projects. Water user fees not yet collected. Funds are	Limited research in AWM and limited linkages with local research institutions. Limited knowledge and adaptation on Climate Change. Use of old technologies for water management, e.g. use of analogue water measuring technology	Inadequate integration of the sections within the Department of Water Affairs. Platforms for stakeholder participation have been established such as River Basin authorities and the National Water Authority. Linkages exist between the Ministry of Agriculture and the Ministry of Natural	Scattering of AWM issues across several sectors results in overlaps when institutions undertake their responsibilities. Limited private sector partnerships with the Ministry for management and development	For operation and maintenance of large dams, service delivery is very efficient when given to parastatals and private companies outside government.

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
	Non availability of water supply legislation.	harmonized and rarely communicated to stakeholders. Inadequate monitoring of water permit holders to monitor water use.	staff training in water sector. Training of staff almost none existent due to closure of government support for external training.	mostly directed for capital investment in starting projects but limited funds are allocated to operation and maintenance of existing infrastructure such as hydrological network. Financial allocations from government reduced annually. Insufficient vehicles to	instead of real-time monitoring systems. Poor monitoring and evaluation on implementation of projects and programmes. Shortage of engineering skills. Inadequate skills transfer to river basin institutions. Limited demonstration projects to	Resources especially through the Department of Water Affairs. Inadequate release of information to stakeholder institutions in the AWM sector. Established river basin institutions have inadequate capacity to carry out their mandated responsibilities. Inadequate awareness raising initiatives to get members	activities in the water sector.	

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
				cater for work.	promote good practices.	of the general public to be aware of the existence and responsibilities of newly established water institutions. Bureaucratic systems which reduce efficiency in service delivery.		
Ministry of Economic Planning and Development. **(Political leadership)**	National Development Strategy updated. Poverty Reduction Strategy and Action Plan. Coordination with Ministry of Finance for budget allocation	Budgeting for sectors based on the NDS and NDP Prioritization of sectors for allocation in budget. Requirement for sectors to give regular updates on	Staff profile available. Staff transfers across the different sectors.	Limited Government resources to cater for all planned projects. Inefficient implementation of projects.	Inadequate skills amongst implementers. High staff turnover in planning cadre which affects development planning	Stakeholder consultation is done but needs improvement through strengthening of the sector wide approach. Stakeholder consultation is done by sectoral	Regular progress reporting systems are in place. Resuscitation of sector – wide approach.	Working closely with the UN agencies, European Commission, the Republic of China on Taiwan, and receive significant technical and

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
	and controlling public expenditure. Increased focus in budget allocation for agriculture water management with special focus on infrastructure development. .	progress achieved in project implementation. No verification mechanism to confirm data and information provided by sectors. Performance indicators are available to monitor progress.		Project management is mainly driven from line ministries. Project delays are common causing escalation in project costs. Limited capacity to mobilization funds to cater for projects. Control of budget expenditure.	across sectors. Poor monitoring and evaluation for the developed programmes.	officers across sectors.	Resuscitation of medium term expenditure framework to guide budgeting and expenditure of public funds.	financial support I preparation of budges for projects.

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
SWADE	Has good project implementation record, has implemented the Komati Downstream Development Project, LUSIP 1 & LUSLIM. Ability to mobilize project funds from development partners. Has a good financial management practice. Now in the final stages of mobilizing finances for LUSIP II Extension. Has developed systems and procedures for	Organization has been functioning without a chief executive officer for over 4 years. There has been too much staff turnover at executive management. Lack of stability. Strategy implementation has fallen by the way side. No real mechanisms for coordination, monitoring and evaluation.	Availability of project staff to carry on the mandate has been fundamental for the success. There has been some loss of institutional memory as key staff has resigned.	Organization is entirely dependent on government financial support. Speed of implementation dependent on government availability of funds. Has an efficient procurement process which is faster than government systems.	As an institution, SWADE's technical capacity is well recognized. This has helped in raising international donor funds for ongoing programs such as LUSLIM and now LUSIP II Extension. Flexibility in recruitment of required technical expertise even for project by project basis.	Community participation in implementation of projects. Some noticeable overlaps with other government institutions when carrying out its responsibilities. Gives support to the basin institutions within the project areas. Communication and awareness raising programmes available to disseminate project	Risk of running a fragmented organization because of the tendency towards polarization by the different levels and units in order to deflect some of the political intervention.	The use of external financial institutions is a unifier. Uncoordinated political intervention

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
	community mobilization and development of chiefdom plans.				Project timelines give guidance to fast track implementation.	information.		
Swaziland Environment Authority	Transformation of organisation from government to parastatal increasing institutional efficiency. Development of legislative and regulatory instruments to enhance environmental protection. Increased public participation and information dissemination.	Limited coordination with other sectors due to non-active technical committees. Poor enforcement of some laws on SNL and smaller projects. Polluter pays principle still not fully implemented.	Broad environmental issues to be covered yet staff numbers are very limited.	Funding for operational activities provided by the government and these funds are insufficient to carry out all desired targets. Cooperating partners mostly from the United Nations family fund some		Inter-sectoral technical teams established under the Swaziland Environment Authority Action Plan but some committees are not active. Water quality monitoring done in collaboration with the Department of Water Affairs. There may be		Private sector involvement in undertaking EIAs which are then reviewed by the authority.

Step 2.1: Assessing Performance of Institutions								
Institution	**Effectiveness**		**Capacity**			**Governance dimensions**		
	Quantitative	**Qualitative**	**Human**	**Financial**	**Technical**	**Institutions & stakeholders governance relationship**	**Dynamics of relations between different levels within institutions**	**External actors' influence**
	All big agricultural projects have been subjected to EIAs. National environment fund for conservation projects and for environmental restoration activities.			projects.		institutional bad relationships with companies with a track record of pollution.		

Conclusion

The main findings and conclusions from this exercise are inadequate coordination and collaboration between the key stakeholder institutions in the AWM sector. There is no platform or established system for coordinated planning and execution of similar roles and responsibilities. There is also inadequate enforcement of regulatory measures in AWM due to limitation in finances, technical expertise and inadequate monitoring. Examples are that water users still have not installed water measuring devices, catchment management is still poor and maintenance of infrastructure is inadequate. There is also a need to improve monitoring and evaluation of projects and programmes and the feedback mechanisms to improve service delivery in the sector.

A series of conclusions have been drawn and summarised in Table 2.1b below.

Table 2.1b: Summary of Conclusions of assessing the performance of institutions

Summary of conclusions of assessing the performance of institutions		
Institution	**Functions Underperforming**	**Causes of the Institutional underperformance (Capacity, Governance)**
Ministry of Agriculture	Poor extension and research services to assist farmers to improve their productivity.	1. **Capacity:** Limited technical and financial capacity. 2. **Governance:** Need to undertake institutional reforms to carry out effective research. 3. **Governance:** Inadequate farmer consultation and feedback mechanisms. Need to create links in order to give demand driven services.
	Uncoordinated data and information management to improve monitoring of the sector performance and share information with all the relevant stakeholders.	1. **Capacity:** lack of skills, technology, equipment and financial resources to improve data collection and development of an information management system. 2. **Governance:** No clear forums and linkages with other institutions for data sharing. No communication strategy to communicate available data with farmers and other stakeholders.
	Lack of enforcement of policy directives.	1. **Governance:** Slow process of policy reforms and the updating of legislation. There are is no enforcement system in place. 2. **Capacity:** Limited technical and financial capacity.
	Inadequate financial resources received from government to increase agricultural productivity.	1. **Governance**: Inadequate political will to increase budget allocation to agriculture recurrent budget from 4% to 10% on national budget.
	Poor governance of community based infrastructure projects.	1. **Capacity:** Lack of financial and technical support for operation and maintenance of community based infrastructure. 2. **Governance**: No governance system in place to manage and sustain the infrastructure built.
	Some technical fields are not represented in the Ministry e.g. an agribusiness, marketing	1. **Capacity**: Lack of technical and financial capacity to establish some important technical units required to improve the agriculture sector and help in value addition and marketing of produce.

Department of Water Affairs	Slow implementation of Water Act stipulation such as water meter installation, payment of water user fees.	1. **Capacity:** Limited technical and financial resources. 2. **Governance:** Very slow process for gazetting regulations. 3. **Governance:** Some of the compliance monitoring is to be done at the river basin institutions which still lack capacity. 4. **Governance:** Limited skills transfer from the Department to river basin institutions.
	Uncoordinated data collection and poor information management systems.	1. **Capacity:** lack of updated technological equipment and financial resources to improve data collection and development of an information management system. There is no dedicated office for data and information management. 2. **Governance:** No created linkages with other institutions for data sharing.
	Limited capacity building and devolution of responsibilities to river basin institutions.	1. **Capacity:** Limited financial and technical resources. 2. **Governance:** Slow process of institutional reforms.
	Inadequate water use monitoring and determination of water balance for the country.	1. **Capacity**: Limited financial and technical resources. 2. **Governance:** Slow process of institutional reforms.
Ministry of Economic Planning and Development	Insufficient monitoring of implementation of projects carried out within the different line ministries involved with water and agriculture.	1. **Capacity:** Limited financial and technical resources.
SWADE	Implementation speed is slower than anticipated in some projects.	1. **Capacity:** Limited funding from government to fast track project.
	There has been high staff turnover at executive management level.	1. **Capacity**: Limited financial resources. 2. **Governance**: Work policies not conducive to keep staff at executive level.
	Overlaps in areas of responsibility with other institutions.	1. **Governance:** Inadequate collaboration and coordination with key stakeholder institutions when implementing projects.

Swaziland Environment Authority	Limited coordination with other sectors due to non-active technical committees. Poor enforcement of some environmental protection regulations on SNL and smaller projects.	1. **Governance:** Inadequate collaboration with key stakeholder institutions in environmental protection. 1. **Capacity:** Limited capacity for inspection, monitoring and enforcement of regulations for smaller projects around the country.

2.2 Legal and regulatory frameworks

The assessment of the legal and regulatory framework was done in light of the identified laws and regulations to attain the specific targets as elaborated in Table 2. The two criteria that were used to assess the ability to attain the specific targets are i) identifying the effectiveness of the legal instrument and ii) assessment of the governance dimensions of the available laws.

The specific areas that were investigated were as follows:

Effectiveness of the legal framework

The aspects that were covered when investigating the effectiveness of the institutions included the following:

- Measures put in place to reach the objectives
- Do the laws promote transparency, accountability, and participation of stakeholders?
- Does the legal framework support private sector interventions?
- Does the legal framework protect and promote the poor and consider affordability when issues of payments are made?

Governance Dimensions

The analysis looked at issues of resistance to change, or the readiness to change and identified weaknesses and strengths of the primary legislations in the sector. Table 2.2a below provides the results from the assessment.

Table 2.2a: Diagnostic exercise of legal and regulatory frameworks

Step 2.2: Diagnostics of Legal/Regulatory Framework						
Primary Legislation	**Specific Targets**	**Effectiveness**		**Governance dimensions**		
		Strengths	**Weaknesses**	**Formal/Informal aspects**	**Readiness to change**	**Resistance to change**
Electricity Act, 2007	To regulate the electricity supply industry through licensing of power generation, transmission, distribution, importing and supply. Improved access of electricity for all citizens.	Liberalisation of the energy sector. Establishment of an energy regulatory authority to guide and ensure a fair market for the liberalisation of the electricity. Increase access of electricity. Increase in transparency through establishment of an independent body.	Non alignment of some aspects of the Electricity Act with Acts in existence within the sector. Act does not give special preference or promotion to renewable energy which would address issues of cost and sustainability.	Establishment of an energy regulatory authority.	Readiness to change was created by the development of simultaneous Acts to establish some of the institutions that were required to liberalise the energy sector.	No, Very little resistance to change was felt due to the transformation of existing institutions to new institutions. Transition was smooth with personnel, assets, liabilities, obligations transferred to new institutions.
Water Act, 2003	Decentralisation of water resources management. Promote coordination and integration for water management and development. Facilitate equitable water allocation and promote water use	Has specific timelines for establishment of institutions, developing and updating of the water master plan. Advocates for the payment for commercial water use to sustain operations	Poor financial support structure for newly formed institutions. The increasing number of established institutions increases the financial burden on the water users	Establishment of water management institutions to improve service delivery to water users. Private sector involvement not clearly outlined.	Newly formed institutions have not fully assumed their roles due to inadequate technical and financial capacity. Available financial resources insufficient to undertake new duties.	Yes, The institutions before the Act still performing their old duties as before.

Step 2.2: Diagnostics of Legal/Regulatory Framework						
Primary Legislation	**Specific Targets**	**Effectiveness**		**Governance dimensions**		
		Strengths	**Weaknesses**	**Formal/Informal aspects**	**Readiness to change**	**Resistance to change**
	efficiency.	of institutions. Promotes efficiency of water use through monitoring of water use by river basin institutions. Promotes integrated planning to involve all sectors to carefully plan for development. Volumetric water permit awarding, rationing and revoking conditions elaborated.	especially the farmer. Structure and direct responsibilities of the Department Water Affairs not given. No clear direction on the operation and maintenance of water infrastructure used for agricultural purposes. Lack of important regulations to give clear guidance on specific areas.			
The Energy Regulatory Act, 2007	Establish an Energy Regulatory Authority. To regulate and ensure compliance with issued licenses.	Regulation of the energy sector. Encouraging of renewable energy Protection of	Inadequate infrastructure to encourage de-monopolising energy supply.	Establishment of the Swaziland Energy Regulatory Authority (SERA).	Preparations were made to prepare for the change.	No.

Step 2.2: Diagnostics of Legal/Regulatory Framework						
Primary Legislation	**Specific Targets**	**Effectiveness**		**Governance dimensions**		
		Strengths	**Weaknesses**	**Formal/Informal aspects**	**Readiness to change**	**Resistance to change**
	To regulate tariffs	consumers from high energy tariffs.				
Environment Management Act, 2002	Prevention and minimization of adverse effects on the environment that may be caused by any activity or project. Application of the polluter pays principle. Promote sustainable use of natural resources such as land and water taking into account the consequences for the present and future generations.	Provides for a comprehensive process for public participation. The responsibility for water pollution is placed on the polluter.	Limited collaboration outlined with DWA, MOA and the decentralised water management structures in the monitoring of water quality and impact of new developments on the environment.	The Swaziland Environment Fund set up for funding projects that enhance conservation and management of water resources. Multi-sectoral Management Board (agriculture sector included) to oversee successful implementation of the Act.	Systems in place to operationalize the carryout of the EIA.	No.
The Plant Control Act, 1981	Gives authority for the compulsory destruction of alien plants.	Provides for protection of water resources and catchments from invasive species.	Fines do not provide an insufficient incentive.	No clear enforcement human resources for the monitoring of the eradication of alien plants.	Land owners are not ready to use their own resources to destroy alien invasive plants.	Yes.

Step 2.2: Diagnostics of Legal/Regulatory Framework						
Primary Legislation	**Specific Targets**	**Effectiveness**		**Governance dimensions**		
		Strengths	**Weaknesses**	**Formal/Informal aspects**	**Readiness to change**	**Resistance to change**
The Natural Resources Act, 1951	Establishes the Natural Resources Board to oversee for the protection, conservation and improvement of natural resources.	Powers of board clearly outlined and main objective of conservation and improvement of natural resources enshrined. Provides for formation of conservation committees.	Composition of board not outlined in the Act.	Non-operational conservation committees to be set up in accordance to the Act would enhance public participation in management of water resources.	Not much preparation on how to operationalize and finance the committees.	No.
The Natural Resources (Public Stream Banks) Regulation, 1951	Prevent cultivation of crops within 100 feet (33 meters) from the banks of public streams. Protect destruction of biodiversity rich ecosystems close to the river banks.	Protects streams from erosion and provides for protection of riverine ecosystems.	Enforcement mechanisms are not outlined in the regulations. Only restricts activities to cultivation, and no other development activities that may affect the streams.	No collaborations formed with Traditional Authorities to help implement the regulation.	Communities and households are encroaching into the stream banks for ease of access to water resources.	Yes.
The Water Pollution Control Regulations, 2010	Outline responsibilities for operators, water authorities and the SEA.	Sets out a clear mechanism for prevention and management of water pollution incidences. Provides for the public to report pollution	Regulations do not provide for pollution from agricultural activities, which are not channelled through a definite	Inadequate monitoring of water pollution. Need to Improve monitoring systems to real-time.	There is need for some companies to change or improve their wastewater treatment systems which requires capital investment and sometimes new	Yes.

Step 2.2: Diagnostics of Legal/Regulatory Framework						
Primary Legislation	**Specific Targets**	**Effectiveness**		**Governance dimensions**		
		Strengths	**Weaknesses**	**Formal/Informal aspects**	**Readiness to change**	**Resistance to change**
		incidences and for polluters to make provisions for alternative water supply to water users.	discharge point. Water Quality objectives do not take into account water standards for water to be used for agriculture.	Involve communities in pollution reporting.	expertise.	
Environmental Audit, assessment and Review Regulations, 2000	Promote the integration of environmental Management to economic and social development.	Provides for the environmental Impact assessment for all Agricultural development projects Provides for the participation of the public from the beginning to the end of the EIA process to the.	Regulations do not outline processes for Strategic environmental Assessment, which is a tool that promotes agricultural development and natural resource management in an integrated manner	Develop collaboration between Authority and companies.	Need to establish guidelines for carrying out environmental audits.	Yes.

Conclusion

The conclusion that can be drawn from the assessment of the legal and regulatory framework is that laws which include a system to implement the policies met very little resistance and functioned satisfactory. Examples are the Environment Management Act (2002) and the Electricity Act (2007).

The conclusions drawn from the assessment of the legal and regulatory framework have been summarised in the Table 2.2b below.

Table 2.2b: Summary of conclusions of assessing the performance of legal and regulatory frameworks

Step 2.2 - Summary of Conclusions of assessing the performance of legal and regulatory frameworks.		
Primary Legislation	**Specific Target not achieved**	**Reasons behind specific targets not achieved: Formal/ informal aspects (F/I) Readiness (Rd) Resistance to change (Rs)**
Water Act, 2003	River Basin Institutions not fully operational. Institutions existing before the Act are still performing their old responsibilities. Water permits not awarded in volumetric units. Water permit monitoring and enforcement is inefficient. Regulations (water pricing, effluent control, water permit, borehole drilling) not gazetted thus not operational.	**F/I** Gazetting process has been very slow. Non availability of sufficient technical and financial resources to operationalize the basin institutions. This hinders the carrying out of the important river basin roles such as monitoring of water permit compliance and efficient utilisation of water. **Rd**: No There was no clear strategy on how the change was to be implemented thus there was no readiness to change. **Rs**: Yes
Environment Management Act, 2002	Limited collaboration with Department of Water Affairs, Ministry of Agriculture and the decentralised water management structures in the monitoring of water quality and carrying out impact assessment of new developments on the environment. Limited EIA carried out on cumulative impacts caused by all existing and planned developments within the agricultural water sector.	**F/I** Weak working relationships between the Department of Water Affairs and Ministry of Agriculture. **Rd:** Yes **Rs:** No
The Plant Control Act, 1981.	Enforcement of land owners to destroy alien invasive species within their land parcels.	**F/I** No system in place to monitor and enforce the destruction of invasive plants. Fines for non-compliance are too low. **Rd:** Yes **Rs:** No
The Natural Resources (Public Stream Banks) Regulation,	No enforcement of the regulation to prevent cultivation within 33metres from river banks.	**F/I** No system in place to monitor and enforce the

1951.		stream banks regulation. It is only within the organised agricultural developments where EIAs are undertaken that developments are complying with the regulation.
Protection of Fresh Water Fish, 1937	Inefficient regulation of fishing in the country's water sources, especially from the dams.	**F/I** Inadequate monitoring and enforcement of the Act. Requires local level monitoring systems to curb illegal fishing which systems are not in place. Unemployed citizens living near large water bodies see this as a business opportunity. There is an established informal market thus the illegal fishing continues. **Rd:** Yes **Rs:** No
The Water Pollution Control Regulations, 2010	Pollution control from agriculture is not effective.	**F/I** No developed mechanism to minimise pollution from irrigated agricultural return flows which due to expansion of land under this sector, the diffuse pollution has great impact on the river systems. **Rd:** Yes **Rs:** No

2.3 Policies and processes

The assessment of policies and processes in AWM was done following the identified policies to attain the specific targets, and solve challenges within the sector. The effectiveness of the policies as well as the governance dimensions was studied.

Effectiveness of policies and processes.

The aspects that were covered when investigating the effectiveness of the institutions included the following:

- Have existing policies improved inputs and outputs in the agriculture water sector?
- Are accountability and transparency processes working?
- What is the degree of overall ownership (are stakeholder consultation meetings and forums working)?
- How are water conflicts across sectors resolved?
- Have the existing policies reduced unaccounted for water?

Governance Dimensions

The analysis looked into formal/informal aspects and readiness for reform/dialogue/compromises with respect to a specific policy. Other issues analysed include the background of policies (which institution led the formulation of the policy); institutions that participated in policy formulation; mandate of policy implementation; period of implementation and; availability of a monitoring and evaluation programme. Table 2.3 shows the results of the policy assessment.

Table 2.3a: Assessing the performance of policies and processes.

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
Livestock Development Policy, 1995	To increase levels of animal fertility, promote self-reliance through diversification and make livestock production profitable.	Improved control of animal disease and veterinary public health. Diversification in livestock production.	Lack of enforcement of rangeland management. Stocking rates not determined and not implemented leading to overstocking of rangelands. Inadequate livestock farmer training centres. Non-payment of services for disease control.	Working with other stakeholders in specific areas such as catchment management, prevention of livestock theft.	No. Programmes implemented but still no Act to ensure enforcement. Limited financial resources. Inadequate awareness raising and dialogue between government, farmers and leaders.
Forestry Policy, 2002	Achieve efficient, profitable and sustainable management and utilization of forest resources for the benefit of the entire society and to increase the role of forestry in	Improved forestry management with strong linkages to environmental sustainability, good land and water management practises, eradication of alien invasive	There is no institutional setup identified to assist in the coordination between the forestry sector and the other interlinked sectors such as water, energy, agriculture	The policy seeks to encourage the privatisation of certain functions and services of the Ministry responsible for forestry. The Forestry Policy was the initial step to	No. No established institutional arrangement to monitor forestry management issues between government and other players. Updating of Forestry Act as was mentioned in the policy has not

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
	environmental protection and conservation.	species and sharing of benefits with communities.	and environment.	reform but not much progress has been seen after that. There is no monitoring and evaluation programme. To create an enabling environment for co-ordination of forestry programmes and co-operation with stakeholders in the forestry sector.	been undertaken.
National Rural Resettlement Policy, 2003.	To establish a durable, practical and participatory framework for planning and management of land for agricultural productivity, environmental sustainability and clustering of households for efficient provision of	Gives clear guide on establishing a well organised, transparent, equitable compensation approach to be followed by project proponents to ensure that people affected by any development are taken care of by	Lack of capacity building initiatives to build the capacity of government institutions and the communities to facilitate the carrying out of proper resettlement.	Resettlement committees are project based. Policy proposes the establishment of a central authority with overall responsibility to execute the resettlement policy to be under the MOA.	No. Institutional Structure has been proposed in policy and key stakeholders involved in resettlement issues have been identified to establish the resettlement board. The next step would be the development of a Development

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
	infrastructure and services.	the project. Calls for the development of land use plans based on soil suitability.		Lack of monitoring and evaluation programme for policy.	and Resettlement Act.
Comprehensive Agriculture Sector Policy, 2005	Ensure optimum contribution of the agriculture sector to the socio economic development of the country through Intensifying and diversifying agricultural productivity in accordance with good water and land management practices.	There has been an increase in land under irrigated commercial agriculture for small scale farmers in rural areas. Increased access to water for farmers in rural areas due to support in the construction infrastructure. Diversification of crops and livestock under production.	Capacity of extension services and research units has not been improved. Preparedness for climate change adaptation is slow.	Establishment of partnerships with the private sector and cooperating partners to assist in carrying out the programmes in the policy. Establishment of a secretariat to facilitate the implementation of the policy.	Yes Some of the policy pronouncement are being implemented such as increase in land under irrigation.
Irrigation Policy, 2005	To provide clear guidance on the development and	Facilitate the empowerment of small holder irrigators	No follow up to investigate the implementation of	Inadequate coordination with other	Yes Progress in irrigation on Swazi

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
	enhancement of irrigation systems in order to expand land under irrigation and improve agricultural water management and thereby increase productivity of small holder irrigated farms.	on Swazi Nation Land. Stimulate investment in the irrigation subsector. Promote the use of efficient irrigation systems. Construction of dams both large dams and earth dams to assist small scale farmers to irrigate crops to increase productivity.	the stipulations of the policy. Issues such as catchment management, irrigation scheduling, water quality monitoring in reservoir and after irrigation is not done. No guidelines direct good practise for irrigators. Inadequate operations and maintenance for developed infrastructure.	sector players. There has been significant financial assistance from cooperating partners and development partners in improving irrigated agriculture infrastructure. Use of government parastatal for capacity building in project development areas for large dam projects.	Nation Land thus there was readiness to implement the policy.
National Food Security Policy, 2005	To ensure that all people in Swaziland at all times have physical and economic access to sufficient, safe and nutritious food to	Recognises the importance to support maize production in suitable agro climatic zones to improve food security.	Establishes many committees e.g. Economic Planning and Analysis Department, Early Warning and food	Promotes Coordination with the Vulnerability Assessment Committee Establishment of an early warning and food	Yes.

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
	meet their dietary needs and food preferences for an active and healthy life.	In the diversification strategy all agricultural products are promoted e.g. livestock, fisheries, forestry. Promote alternative rural livelihood options such as handicraft, eco-tourism. Calls for improvement in food storage facilities. Seeks to minimise the impacts on HIV/AIDS.	security committee, Consultative committee on food security, Steering Committee of the Consultative Committee on food security, and 6 sub committees.	security unit.	
National Water Policy, 2011 (draft)	To foster sustainable development and management of water resources in the country through integrated planning.	Recognises the importance of stakeholder participation for successful water resources management.	Does not determine the revenue collection system. Cost of water use not determined. Poor awareness	Establishment of stakeholder forums at local, basin and national levels.	Yes Some stipulations of the policy have been implemented such as the establishment of River Basin Institutions.

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
		Promote coordinated planning in water sector. Promote the construction of dam to increase water availability. Introducing the concept of water user fees to sustain newly developed water institutions and promote water use efficiency.	raising on stipulations of policy. Not clear on water permits and management for community livelihood projects.		
Agriculture Research Policy, 2011	To create an enabling environment for the National Agricultural Research System to be efficient, effective and responsive to demand and produce research and products which are relevant to the defined national	Encourages the participation of the private sector, academic institutions and civil organisations in agriculture based research. Promotes demand driven research and creation of strong	Has stipulated a restructuring of the research units and thus cannot be implementable without developing an Act to enhance implementation of the stipulations on the policy.	Establishment of the National Agricultural Research Authority.	No. The proposed reforms may not be easily implementable as they require a government instrument to implement and financial support.

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
	priorities.	linkages between farmers and researchers. Promotes creation of a research fund to promote research and reduce complete dependence on Government.			
Integrated Water Resources Master Plan, 2011.	To provide strategic direction on how best to utilize, manage and develop water resources to facilitate social and Economic development that will improve the livelihoods for the people of Swaziland.	Prioritisation of water development options. Water allocation criteria defined. Plan of action for all the activities that have to be undertaken was developed.	Plan was developed from a water sector perspective with limited input from agriculture sector programmes that have a bearing on water use. Was not distributed for information dissemination to stakeholders in the sector.	Implementation by the DWA, river basin institutions and other sector institutions. There is no monitoring and evaluation programme in place to monitor progress.	Yes The plan is carried out to some extent.

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
Fresh Water Fisheries and Aquaculture Policy in Swaziland, 2011	To ensure sustainable and regulated access to fish resources in order to achieve an equitable balance between socio economic needs and ecosystems health.	Seeks to minimise the impacts on HIV/AIDS. Seeks to empower women to undertake fish farming. Fingerlings to be highly subsidised to encourage farmers to start fish farming. Encourage organised sport fishing and derive revenue.	Uncontrolled illegal fishing in dams and the policy does not mention monitoring and inspections to discourage this activity. The Act needs updating the permit fees are too low.	Partnerships are encouraged to develop hatcheries by the private sector. Restructuring and capacity building of the fisheries section.	Yes
Draft Summary report on the Swaziland National Agricultural Investment Plan, 2014	To increase the contribution of agriculture to economic development, reduce poverty and improve food and nutrition security.	Gap analysis was undertaken and main challenges affecting the agriculture sector were identified. Impacts of Climate Change identified. Target of SNAIP is to achieve 6% agricultural GDP	SNAIP is too costly at approximately E10.3 billion over 10 years. Assumes increase 10% budget allocation for agriculture by 2020 which involves an element of risk. Proposed	Implementation structure has been developed and consists of SNAIP council of Ministers, SNAIP Coordinating Committee, 5 programme coordinators and programme management committees, a SNAIP	Yes

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
		growth. Key investments required to increase agricultural production identified and prioritised. Developed 5 programmes and sub programmes of action to be undertaken. Programmes have been costed and financing scenario identified. SNAIP implementation structure developed. Baseline data on productivity, GDP contributions and imports have been given for various crops and livestock	implementation structure still to be set up and involves Political leadership.	Secretariat within MOA and the CAADP country team.	

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
		types. SNAIP developed by MOA with key stakeholders. Indicators to monitor progress developed.			
Draft National Climate Change Strategy and Action Plan, 2014.	To provide a systematic approach to deal with climate change through adaptation and mitigation in a manner that contributes to achieve sustainable development and eradication of poverty.	Development of an action plan with indicators as part of the strategy. Builds a common understanding on climate change issues among stakeholders. Establishes principle of shared responsibility among stakeholders due to the cross cutting nature of climate change. Proposes institutional	Coordination of climate change between the proposed climate change unit, the Ministry of Tourism and environmental affairs and the other Ministries is not well defined.	Data sharing and Information management system on climate change between institutions not specific. The strategy calls for dialogue between government, civil society and other stakeholder through various approaches such as roundtable discussions, workshops, meetings.	Yes

Step 2.3: Assessing the performance of policies and processes.					
Policy	**Specific Policy Objective**	**Effectiveness**		**Governance**	
		Strengths	**Weaknesses**	**Formal/ Informal aspects**	**Readiness for reform/dialogue/compromises**
		reforms with the establishment of a climate change unit in the office of the Deputy Prime Minister's office.			

Conclusions

The conclusions drawn from the assessment of policies has been summarised in the Table 2.3b below.

Table 2.3b - Summary of Conclusions of assessing the performance of policies.

Policy	Specific Target not achieved	Reasons why specific targets not achieved: Formal/ informal aspects (F/I) Readiness (Rd) Resistance to change (Rs)
Livestock Development Policy, 1995	Good rangeland management has not been achieved. Overstocking of rangelands. Inadequate livestock farmer training	**F/I:** No collaborations with stakeholder institutions and the farmers to facilitate good management practises on the rangelands. **Rs:** yes, farmers do not want to reduce livestock numbers. Governance: Stocking rates not established and enforced for the various grazing lands. Governance: resistance from farmers to reduce number of stocks. **Rd**: No, lack of financial and technical resources.
Forestry Policy, 2002	Afforestation and reforestation programme still needs more strengthening. Promotion and protection of green belts and wetlands insufficient. Fire management practices to control the devastation of forests by uncontrolled forest fires. Communities given responsibility to manage communal forests for their benefits.	**F/I** Need to strengthen collaboration with stakeholder institutions and communities to plant more trees and protect wetlands. Stakeholder awareness and participation is imperative for the management of forest resources and for cultivating a culture of good management practises. **Rs:**Yes, the implementation of the policy requires the involvement of communities and other stakeholders who are not to fully participate in implementing the policy pronouncements. **Rd**: Yes
National Rural Resettlement Policy, 2003	Central authority with overall responsibility to execute the resettlement policy under the Ministry of Agriculture has not been established.	**F/I:** There is need to undertake institutional reforms in order to be able to fully implement policy directives.

Table 2.3b - Summary of Conclusions of assessing the performance of policies.		
Policy	**Specific Target not achieved**	**Reasons why specific targets not achieved: Formal/ informal aspects (F/I) Readiness (Rd) Resistance to change (Rs)**
		Rs: No, there seems to be not much resistance to the guiding principles given in the policy documents because the document is consulted by some stakeholders for guidance when working with resettlement issues. **Rd:** There is no readiness to change, the instruments and finances for the establishment of institution are not yet in place.
Comprehensive Agriculture Sector Policy, 2005	Capacity of extension service has not yet been improved. Secretariat to facilitate implementation of policy is not yet in place.	**F/I:** The institutional arrangements are lagging behind. **Rs**: No **Rd:** No, the ministry is still making the necessary arrangements to develop capacity of extension services and on how to implement the policy.
Irrigation Policy, 2005	Catchment management has not yet been improved causing huge siltation in small and big dams thus reducing the effective lifespan of the infrastructure. No incentives for efficient use of water. No guidelines to direct good practise for irrigators. No clear governance mechanism to guide operation and maintenance of infrastructure built for communities.	**F/I:** Catchment management needs strong collaboration with other stakeholders and farmers with increased awareness raising and support to carry out good management practises. No clear institutional arrangement for management of community based infrastructure. **Rs:** No **Rd:** No, the Ministry and key stakeholders are not yet ready to implement water pricing and the guidelines for irrigation good practise have not yet been developed.
National Food Security Policy,	Proposed committees to coordinate food security are still to be established.	**F/I** There are a number of committees that need to be established under this policy.

Table 2.3b - Summary of Conclusions of assessing the performance of policies.		
Policy	**Specific Target not achieved**	**Reasons why specific targets not achieved: Formal/ informal aspects (F/I) Readiness (Rd) Resistance to change (Rs)**
2005	Facilitate smallholder farmer access to agricultural inputs and credit. Promote alternative livelihoods in rural areas. Strengthen national response to react to drought and improve preparedness and response to drought and other disasters	**Rs:** No **Rd: No, t**he Ministry is still preparing to undertake fully the stipulations of the policy.
National Water Policy, 2011 (draft)	Application of water user fees not yet effected. Water use accounting not undertaken. Permit compliance monitoring is still inadequate. River Basin Authorities not fully operational.	**F/I:** gazetting of water pricing regulations and all the other developed regulations not yet done by relevant institution. Information for water accounting is scattered within the many water sector users. **Rs:**No**, t**he pronouncements of the policy are not yet fully implemented because of lack of capacity rather than the unwillingness of stakeholder to implement the required change. **R/d:** Financial and technical support was not available to enable operation of river basin institutions.
Agriculture Research Policy, 2011	Establishment of the National Agricultural Research Authority not yet undertaken. Reforms stipulated by the policy are not yet implemented. Research fund not yet established.	**F/I:** There is need to develop the legal framework to facilitate the implementation of the reforms in agricultural research. **Rs:** No **Rd:** No, the preparations to implement the policy are still not yet in place.
Fresh Water Fisheries and Aquaculture Policy in Swaziland, 2011	Hatchery not yet functional. Permit fees not yet revised. Illegal fishing is still ongoing; the policy stipulations are not yet	**F/I: To implement some of the pronouncement of the policy such as curbing illegal fishing would require assistance from other stakeholder institutions.**

Table 2.3b - Summary of Conclusions of assessing the performance of policies.		
Policy	**Specific Target not achieved**	**Reasons why specific targets not achieved: Formal/ informal aspects (F/I) Readiness (Rd) Resistance to change (Rs)**
	enforced.	**Rs:** Yes **Rd:** No**, t**he Ministry of Agriculture was still not ready to prepare the implementation of policy and this would require financial support as well as change of regulations to affect some of the stipulations of policy.
Draft Summary report on the Swaziland National Agricultural Investment Plan, 2014	Proposed implementation structure still to be set up. The 5 identified programs to be rolled out. (Sustainable natural resources management, Improved access to markets & value chain, Food supply & reducing hunger, Agricultural research, extension, training & education, Institutional strengthening & agricultural knowledge management system.)	**F/I:** SNAIP is a new programme still to be finalised and approved before implementation can be undertaken. **Rs:** No **Rd:** No
Draft National Climate Change Strategy and Action Plan, 2014.	Approach to undertake institutional reforms not yet ready for implementation. Process to align policies and legislation with climate change still to be undertaken.	**F/I:** Strategy is still new and the government has to prepare to implement strategy financially and technically**.** There is also the need for stakeholder collaboration since Climate Change affects many sectors. **Rs:** No **Rd**: No

STEP 3 - ACTION MATRIX

The action matrix used the results from the previous assessments from the initial two steps in order to define actions, policy reforms and investment plans aimed at improving the agricultural water sector. This chapter brings in suggestions on changes that should occur to improve the agricultural water sector and identifies what different actions can be done to improve the inputs and the outputs of the sector.

3.1 Institutions and actors

A list of underperforming areas was identified for key AWM institutions in table 2.1b. Some actions have been proposed to solve underperforming areas alongside with the institutions/actors responsible to implement them. Table 3.1a provides an action matrix for the key institutions.

Table 3.1a: Action matrix of institutions

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
Ministry of Agriculture	Poor and inadequately resourced extension services to assist farmers to improve their productivity.	**Capacity**: limited financial and technical capacity within extension services. **Governance:** inadequate maintenance of structures within extension services.	Increase budget allocation from the government for recurrent activities for extension services. Mobilisation of resources from external funding sources. Initiate and strengthen in house training and external training for staff within extension services.	MOA Ministry of Public Service UNISWA
	Uncoordinated data and information management to improve monitoring of the sector performance and share information with all the relevant stakeholders.	**Capacity**: limited capacity for information management. Lack of the necessary hard and software equipment for data and information management. **Governance:** No identified institution to coordinate data collection and management for the sector. Lack of information sharing guidelines and protocols that all key institutions within the sector can sign up to implement.	Procurement of computers and ICT equipment for data storage and management. Improve communication networks even at the rural development areas to create links with all stakeholders that would input data. Identify and capacitate a unit within the agriculture sector to coordinate data management and dissemination to stakeholders. Develop data sharing protocols and define responsibilities for institutions on data sharing.	MOA DWA MTEA SWADE
	Lack of enforcement of policy directives.	**Capacity:** lack of capacity to monitor compliance. Lack of financial resources	Develop regulations and update and develop legislation to facilitate enforcement.	MOA

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
		Governance: Limited availability of enforceable regulatory instruments to facilitate enforcement. Limited political will.	Improve inspections and monitoring systems. Develop local surveillance in communities to help the ministry to monitor policy directives.	
	Lack of an adaptive research unit driven by farmer demands and linked with extension service.	**Capacity:** Inadequate financial and technical capacity.	Facilitate reforms in the research. Establish partnerships with the private sector and the academic institutions. Develop the research fund. Establish and strengthen forums for collaboration between the farmers and the Ministry.	MOA UNISWA Farmers
	Inadequate financial resources received from government to increase agricultural productivity.	**Governance:** Inadequate political will to increase the agriculture budget from 4% to 10% of national budget.	Raise awareness to political leadership on the importance of agriculture sector.	MOA SD Government.
	Poor governance of community based infrastructure projects.	**Capacity:** Lack of financial and technical support for operation and maintenance of community based infrastructure. **Governance**: No governance system in place to manage and sustain the infrastructure built.	Develop systematic training for communities to manage the irrigation infrastructure. Development of a system of governance for all community infrastructure development projects. Sharing of experiences with other institutions and other countries how to successfully maintain all developed projects within	MOA Farmers Project area communities River basin institutions.

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
			communities. Learn from lessons from projects such as LUSIP on management of infrastructure. Introduce payment systems for communities to do minor systems maintenance for irrigation infrastructure.	
	Some technical fields are not represented in the Ministry e.g. an agribusiness, marketing.	**Capacity**: Lack of technical and financial capacity to establish some important technical units required to improve the agriculture sector and help in value addition and marketing of produce.	Undertake a needs assessment for all the required expertise in the Ministry. Develop a plan to make the necessary skills available within the Ministry. Partnership with the private sector and parastatals to fill in the gaps and provide the necessary technical expertise to help the country in the fields that is unavailable within MOA.	MOA Ministry of Public Service Private sector
Department of Water Affairs	Slow implementation of water act stipulation such as water meter installation, payment of water user fees.	**Capacity:** Limited technical and financial resources **Governance:** Very slow process for gazetting regulations.	Mobilize funds from Government and other cooperating partners to assist in the implementation of reforms. Facilitate in-house training programmes in IWRM. Improve liaison with other key stakeholder institutions to fast track gazetting. Build Political will to facilitate gazetting of	DWA NWA MOJCA

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
			regulations.	
	Uncoordinated data collection and poor information management systems.	**Capacity:** lack of updated technological equipment and financial resources to improve data collection and development of an information management system. There is no dedicated office for data and information management. **Governance:** No created linkages with other institutions for data sharing.	Procurement of computers and ICT equipment for data storage and management. Improve the hydrogeological monitoring stations and install near real time monitoring equipment. Improve communication networks even at the river basin and regional offices to create links with all stakeholders that would input data. Establish a dedicated information management unit. Develop and sign data sharing protocols with institutions in the sector.	DWA RBA MOA MET SEA
	Limited capacity building and devolution of responsibilities to river basin institutions.	**Capacity:** Limited financial and technical resources. **Governance:** Slow process of institutional reforms. Limited skills transfer from the Department to river basin institutions.	Train staff members at the DWA as well as within RBAs. Create and fill structures for the operations of RBAs. Mobilize financial resources to fully operate river basin institutions and get institutional experts to help fast track the change. RBAs can source necessary skills externally through filling of	MNRE DWA NWA RBA MOF MEPD

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
			positions once structures are created as well hiring the private sector companies for technical assistance.	
	Inadequate water use monitoring and determination of water balance for the country.	**Governance:** Some of the compliance monitoring is to be done at the river basin institutions which still lack capacity.	Prioritise the operations of RBAs so as to enable efficient monitoring of water use.	DWA NWA RBA
Ministry of Economic Planning and Development	Insufficient monitoring of implementation of projects carried out within the different line ministries involved with water and agriculture.	**Capacity**: lack of financial and technical support.	Development of monitoring and evaluation section within Ministry. Establishment of project management teams for projects with dedicated project staff members. Undertake periodic onsite investigations to validate progress on the ground. Use of implementation institutions within private sector or parastatals to fast-track implementation process. Increase capacity to mobilise funds through the Aid Coordination Unit.	MEPD MOA DWA SWADE Micro Projects Private Sector
SWADE	Implementation speed is slower than anticipated in some projects.	**Capacity:** Limited funding from government to fast track project.	Mobilization of project funds from other sources other than the government.	SWADE MOA MOF

Step 3.1 Action matrix of institutions				
Institution	**Function underperforming**	**Causes of Institutional underperformance. (Capacity, Governance)**	**Proposed Action**	**Responsible**
			Project implementation team must incorporate MEPD and MOF to monitor progress and new requirements for financial resources.	
	High staff turnover at executive level.	**Capacity**: Limited financial resources. **Governance**: Work environment unfavourable at executive level.	Development of a staff retention system in order to prevent high staff turnover at executive level. Building of conducive work policies and incentives for high performing staff.	SWADE
	Overlaps in areas of responsibility with other institutions.	**Governance:** Inadequate collaboration and coordination with key stakeholder institutions when implementing projects.	Develop good collaboration and coordination with key stakeholder institutions to minimise overlaps and institutional tensions.	SWADE MOA DWA
Swaziland Environmental Authority	Limited coordination with other sectors due to non-active technical committees.	**Governance:** Non-operational technical teams key stakeholder institutions in environmental protection.	Need to develop mechanisms to keep committees active. Have a systematic and regular framework for meetings. Have fewer operational committees than many committees which may be difficult to sustain.	SEA MOA DWA Forestry Department
	Poor enforcement of some environmental protection regulations on SNL and smaller projects.	**Capacity:** Limited capacity for inspection, monitoring and enforcement of regulations for smaller projects around the country.	Improve monitoring systems and involve local institutions in the monitoring for environmental protection.	SEA Communities RBAs RDAs

3.2 Legal and regulatory frameworks

For each of the problems listed in table 2.2, the table below proposes actions to be taken by the responsible institutions.

Table 3.2 – Action matrix for legal and regulatory frameworks

Step 3.2: Action matrix for legal and regulatory frameworks				
Legislation	**Associated problems**	**Reasons behind (effectiveness, Governance, capacity, others)**	**Proposed actions**	**Responsible**
Electricity Act, 2007	No alignment of some aspects of the Electricity Act with Acts in existence within the sector.	**Effectiveness**: Inadequate legislative review during formulation of Act.	Revise Electricity Act to incorporate provisions in related legislation	MNRE MOJCA
	High tariffs.	**Governance**: Limited supply (high demand).	Increase power supply by encouraging more industry players.	MNRE SERA
	Act does not give special preference or promotion to renewable energy which would address issues of cost and sustainability.	**Governance:** No incentive in place for renewable energy generation.	Put in place provisions and incentives to enhance renewable energy generation.	MNRE MEPD SERA
	Unreliable power supply.	Too much reliance on imported power.	Increase power supply by encouraging more industry players.	MNRE SERA
Water Act, 2003	Poor financial support structure for newly formed institutions.	**Capacity:** Lack of financial resources.	Lobby for more funding from government to support the new institutions under the Act. Follow up on gazetting of pricing regulations and implement.	DWA MOF NWA RBA
	Structure and direct responsibilities of the Department Water Affairs not elaborated by the Act.	**Effectiveness:** The institution was not ready to implement Act.	National Water Authority to outline responsibilities of the Department of Water Affairs	MNRE DWA

Step 3.2: Action matrix for legal and regulatory frameworks				
Legislation	**Associated problems**	**Reasons behind (effectiveness, Governance, capacity, others)**	**Proposed actions**	**Responsible**
	Lack of important regulations to give clear guidance on specific areas.	**Effectiveness:** inefficiency in government systems. Some regulation drafts are in the waiting to be promulgated in the AG's Office.	A follow up to be made on draft regulations submitted for promulgation.	MNRE MOJCA
The Energy Regulatory Act, 2007	Inadequate infrastructure to encourage de-monopolizing energy supply.	**Capacity:** The Energy regulator is relatively new; most of the required structures are still being established.	New generators of electricity to be encouraged.	SERA
Environment Management Act, 2002	Limited collaboration outlined with Department of Water Affairs, Ministry of Agriculture and the decentralized water management structures in the monitoring of water quality and impact of new developments on the environment.	**Capacity:** Limited capacity in terms of staff and budget to coordinate with the decentralized structures.	Lobby for more capacity building from Central government.	MTEA SEA
	No multi-sectoral approach.	**Governance**: Poor coordination with other sectors leads to duplication of responsibilities, overlap of activities e.g. water quality monitoring in the river systems.	Revive inter-sectoral collaboration for water quality management.	MNRE SEA
	Aspects of pesticides and Chemicals management are not covered in the act.	**Governance**: Issues of chemicals management were overlooked during promulgation of act.	Need to develop a new legislation to cover management of pesticides.	SEA
The Plant Control Act, 1981.	Fines are too low.	**Effectiveness**: Act is outdated.	Revision of Act to make the fines more prohibitive	MOA MOJCA

Step 3.2: Action matrix for legal and regulatory frameworks				
Legislation	**Associated problems**	**Reasons behind (effectiveness, Governance, capacity, others)**	**Proposed actions**	**Responsible**
The Natural Resources Act, 1951.	Composition of board not outlined in the Act.	**Effectiveness:** Act is outdated.	Revision of act to outline composition of Board and update other aspects to reflect current situation.	MNRE SEA MOJCA.
The Natural Resources (Public Stream Banks) Regulation, 1951.	Enforcement mechanisms are not outlined in the regulations. Regulations only restrict activities of cultivation, and no other activities that may affect rivers and streams.	**Effectiveness**: act has not been updated.	Revision of regulations to outline enforcement mechanism and other activities that may affect rivers and streams. Units used in the Act should also be updated to the metric system.	MNRE SEA MOJCA
The Water Pollution Control Regulations, 2010	Regulations do not provide for pollution from agricultural activities, which are not channeled through a definite discharge point.	**Capacity**: Limited technical capacity.	Revision of Regulations to take into account non-point sources of pollution to water bodies.	SEA DWA
	Monitoring and response to pollution incidences limited.	**Capacity**: Limited financial resources as well as human resources.	Provision of budget to strengthen monitoring of water quality.	SEA DWA
	Water Quality objectives do not take into account water standards for water to be used for agriculture.	**Capacity**: Limited Technical capacity.	Revision of regulations to incorporate agricultural water quality objectives.	SEA DWA
	Poor coordination between the different institutions responsible for water quality.	**Governance**: Sectorial approach to issues that need integrated water management.	Putting in place systems and mechanisms that will enhance coordination between the SEA and the Department of Water Affairs.	SEA DWA
	RBAs have low capacity to monitor water quality	**Capacity:** Limited technical resources.	Building capacity for RBAs to be able to monitor the	DWA NWA

Step 3.2: Action matrix for legal and regulatory frameworks				
Legislation	**Associated problems**	**Reasons behind (effectiveness, Governance, capacity, others)**	**Proposed actions**	**Responsible**
			water quality for water within their jurisdiction	RBA
Environmental Audit, assessment and Review Regulations, 2000	Regulations do not outline processes for Strategic Environmental Assessments, which is a tool that promotes agricultural development and natural resource management in an integrated manner.	**Governance:** There is limited long term planning for implementation of projects and how they interact with other national plans.	Raising awareness for the planning department to develop long term plans that will be subjected to Strategic Environmental Assessments.	SEA MOA
	Poor monitoring of projects that have been authorized.	**Capacity**: Limited human resources.	Increasing the staff compliment of the SEA to be able to monitor environmental compliance of agricultural projects.	SEA MOA
Protection of Freshwater Fish Act, 1937	Pollution of surface water.	**Capacity:** Low enforcement of pollution control measures due to limited financial and human resources.	Increase human and Financial resources.	MOA
	Database or inventory on available species for fresh water fish limited.	**Capacity**: Limited capacity for coordinated research.	Build capacity for research and coordinate with research institutions.	MOA
The Freshwater Fish Regulations, 1937	Regulations difficult to implement as they are outdated.	**Effectiveness**: Institutions responsible for review of legislation have not prioritized update of the regulations.	Review of regulations and Act.	MOA MOJCA

3.3 Policies and processes

For each of the problems listed in table 3.3, the table below proposes actions to be taken by the responsible institutions.

Table 3.3: action matrix for policies and processes

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
Livestock Development Policy, 1995	Lack of enforcement of rangeland management practices, e.g. soil conservation, range reseeding, range resting and rotation, fencing.	**Governance**: no collaboration with stakeholders and farmers to ensure that rangeland management practises are carried.	Collaboration with stakeholders including involvement of community authorities. Increase awareness raising initiatives. Employment of rangeland management inspectors to monitor and facilitate that the practises are carried out.	MOA Farmers MTEA (Forestry Department) SEA
	Overstocking of rangelands.	**Effectiveness**: Stocking rates not established and enforced for the various grazing lands due to limited technical and financial resources. **Governance:** resistance from farmers to reduce number of stocks.	Making of feedlots for farmers in order not to crowd rangelands. Determination of carrying capacity of each of the rangelands and monitoring rangeland utilisation. Develop programs to commercialise livestock production in SNL. Removal of alien invasive species to increase area available to grazing land. Minimise the building of houses and other land uses on grazing lands.	MOA Farmers SEA MTEA -Forestry Department

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
	Non establishment of communal livestock grazing and feeding associations to guide livestock producers.	**Governance:** No system in place at local and regional level to oversee livestock production and management.	Develop a cost effective, local system for the management of livestock management.	MOA Farmers Leaders at national and community level
	No application of cost recovery system for disease control.	**Governance:** Lack of political will and resistance from farmers for payment of services provided for disease control.	Increase awareness to political leadership to build acceptance on the payment of fees by farmers for disease control, e.g. payment for dipping chemicals.	MOA Farmers Leaders at national and community level.
	No upgrading of the veterinary farmer training centres.	**Capacity:** Inadequate financial resources.	Upgrading and operation of livestock farmer training centres. Mobilisation of funds to ensure sustainable operation of the farmer training centres.	MOA Farmers UNISWA Private Sector Parastatals
Forestry Policy, 2002	Inefficient afforestation and reforestation programme.	**Governance:** Lack of collaboration with all stakeholders to promote reforestation.	Improve stakeholder collaboration by establishing forums to promote afforestation.	MTEA- Forestry Department MOA SEA communities
	Degradation of greenbelts and wetlands.	**Governance:** No governance structure to promote wetlands and greenbelts protection policy on SNL and peri-urban areas.	Involve local leadership in the identification and protection of wetlands. Develop management practises to guide sustainable wetland uses for communities.	MTEA - Forestry Department SEA communities
	Poor fire management practises	**Other:** Too many uncontrolled fires during winter due to lack of awareness.	Establish fire breaks. Develop monitoring and surveillance systems to stop the	MTEA - Forestry Department SEA

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
			spread of wildfires. Develop guidelines for people to know when and how to undertake sustainable and controlled burning of old grazing lands. Increase awareness raising.	communities
	Inadequate management of community based forests.	**Governance:** No system to guide and manage effectively the communal resources at community level.	Establish systems and associations for management community forests. Train communities of proper forests management and on approaches for equitable sharing of forest benefits.	MTEA - Forestry Department Communities Private Sector
National Rural Resettlement Policy, 2003	Slow implementation of reforms to execute the resettlement policy for all projects carried out in SNL.	**Governance**: no instrument to establish institution and the committees given in the policy to guide resettlement.	Development of a resettlement Act to grant legal backing for the establishment of the reforms required to guide resettlement.	MOA MNRE SEA MTAD
Comprehensive Agriculture Sector Policy, 2005	Low productivity of agricultural land.	**Capacity:** Low investment and inputs into the agricultural productive systems.	Increase investment in irrigation infrastructure and in soil and water conservation systems. Subsidise agricultural inputs such as seeds, fertiliser and plant machinery to enhance productivity of farms.	MOA Forestry Department DWA
	Poor management of water and land resources.	**Governance:** Lack of collaboration with stakeholders on water and soil conservation	Develop integrated management system for water and land to enable optimal utilisation of	MOA MNRE SEA

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
		issues.	these two important resources for agriculture.	Forestry Department Communities
	Limited farming knowledge and training for SNL farmers.	**Capacity**: Inadequately financed agricultural extension services.	Capacity building for extension services division and mobilization of resources to cover for efficient services of the extension services in serving the farmers.	MOA MEPD SSA SWADE Parastatals
	Crop failures due to limited water availability in the Lowveld areas of Swaziland.	**Capacity:** Unreliable rainfall, poor crop diversification, non-adaptation of agricultural systems to climate change.	Increase investment in irrigation infrastructure, and building of water storage facilities. Encourage good soil management practises to retain soil moisture. Growing water shortage resilient crops. Participation in other money making initiatives in rural areas to support the farming enterprises undertaken by farmers. Enhance weather and climate forecasts and sharing of information with farmers.	MOA DWA Meteorology Department. MEPD Cooperating partners
Irrigation Policy, 2005	Use of inefficient irrigation technologies	**Capacity:** Limited capacity for locally based community projects to use highly efficient technologies such as drip. **Governance:** No incentives for efficient use of water.	Encourage the use of efficient technologies adapted for communities requiring less technical skills and requiring less operation and maintenance cost. Apply water user fees.	MOA SWADE DWA RBAs Farmers

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
		Governance: River basin institutions not yet fully operational. **Governance:** Unmonitored water use because of absence of water meters.	Operationalize river basin institutions. Enforce the legal framework on the requirement for water meters. Government can give technical advice on water meter types suited for small and medium water users and provide training on meter installation and reading.	
	Siltation of dams built for irrigation development.	**Governance:** Poor catchment management practises. **Governance:** Limited collaboration with stakeholders on catchment management practises.	Establish forums at national, regional and local level for effective collaboration of all stakeholders on catchment management, rangeland management, and reforestation. Develop catchment management plans for implementation at local level.	MOA DWA SEA Communities Forestry Department
	Surplus flow water is lost due to the limited availability of water harvesting infrastructure.	**Capacity:** Few large dams have been built due to the high capital cost required for the development of dams.	Increase investment on infrastructure development to harness surplus flows and thereby increase land under irrigation to improve agricultural productivity.	MOA DWA MEPD MOF Cooperating Partners
National Food Security Policy,2005	Food shortages at household and community level.	**Capacity:** low productivity levels of maize, other crops and livestock due to limitation in financial resources, farming	Government support to maize production in suitable agro-ecological zones. Develop infrastructure and	MOA MEPD MOF MTEA

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
		inputs and farming tools and equipment.	markets to community garden projects to grow vegetables and fruits. Improve access to land and water for SNL farmers. Develop programmes to encourage growing of drought tolerant varieties of crops. Develop strategies for adaptation to climate change in the water and agricultural sector.	Cooperating partners
	Insufficient food storage facilities	**Capacity:** Lack of financial and technical resources to build decentralised regional long term storage facilities to gather surplus food produced by communities.	Mobilize finances to build strategic grain and non-grain storage facilities at regional levels. Ensure proper management of the storage infrastructure to prevent food loss. Establish food preservation and processing units to store food over long period of time.	MOA MEPD Private sector
	Low and unsustainable income levels for families reducing ability of families to buy food.	**Governance**: Many people in rural areas live below the poverty line due to inequality in distribution of resources and benefits.	Promote the production of indigenous products from barks, trees, medicinal plants etc. Improve community participation in biodiversity and forestry projects to get benefits from ecotourism.	MOA MTAD MTEA
National water	Inadequate monitoring of	**Capacity**: Lack of capacity by	Operationalise river basin	DWA

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
Policy, 2011	allocated water.	national government to monitor all water users for water abstraction, water use and	institutions. Enforce installation of water meters. Register all water users in the river basin for water accounting purposes.	NWA RBA Farmers
	Non availability of normal flow water for allocation to agricultural development projects.	**Capacity:** Limited financial resources for building large storage reservoirs. **Governance**: Some water has been allocated to permit holders but not yet utilised.	Increase the harvesting of surplus flow water for agriculture through development of small and large dams. Encourage the use of efficient water using technologies through the use of incentives.	DWA MOA NWA RBAs
	Limited funding for water and agricultural management.	**Governance:** Limited funding allocated to water and agriculture sector. Water pricing regulations still not gazetted.	Mobilize funds from government and cooperating partners. Fast track the gazetting of the water pricing regulations. Allow the participation of the private sector for some of the programs in the sector.	MEPD MOF MOA DWA Private sector Cooperating partners
	Water shortages especially in the Lowveld of the country.	**Other:** Very low rainfall in some parts of the country that cannot support much crop production without irrigation. Some areas there are no nearby large rivers for the development of irrigation systems. Climate change has further compounded the water	Develop climate change adaptation strategies for the water and agriculture sector. Investigate potential and then implement for inter-basin transfer of water to support irrigation in the dry regions of the country. Develop drought preparedness	DWA MOA NWA

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
		shortage challenge in that rainfall has become more unreliable and delayed. Water shortages due to drought.	plans and coping strategies to assist water users to be able to better manage the situation when faced with drought. Develop a systematic rationing model for use to control water release from the dams.	
Agriculture Research Policy, 2011	Current research unit has inadequate financial and technical capacity to carry out research as expected.	**Capacity**: Inadequate technical and financial resources.	Set up a research fund. Undertake reforms as stipulated by the policy so as to have the ideal institutional arrangement to facilitate research. Develop partnerships with the private sector and academic institutions as stipulated in policy to enhance capacity to undertake research.	MOA MEPD MOF Private sector UNISWA / Academia Cooperating partners
	Research not responsive to the demands and challenges faced by farmers.	**Governance:** No established forums for sharing information and get feedback between research unit and the farmers.	Establish stakeholder forums for regular and systematic approaches for information sharing and getting feedback at local and regional level.	MOA Farmers
	Inadequate linkages and communication between the research unit and extension services	**Governance:** The sections within the ministry are highly related yet have not developed strong communication links to address farmers' challenges in an integrated manner.	Develop a systematic approach to integrate the work and reporting of the research department and the extension services department. Writing of comprehensive reports and sharing amongst related	MICT MOA Private sector

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
			divisions in the Ministry.	
Fresh Water Fisheries and Aquaculture Policy in Swaziland, 2011	Aquaculture potential not fully exploited and embraced in the country.	**Capacity**: Inadequate financial and technical capacity. **Capacity:** Hatchery not yet completed to facilitate availability of fingerlings to farmers. **Governance:** Limited awareness raising and outreach programs to encourage farmers to undertake fish farming.	Mobilise funding to support the fisheries section of Ministry. Increase fisheries extension services to give support to increase fish farming. Develop hatchery to supply fingerlings to more fish farmers. Develop awareness raising programs to reach out and teach farmers about fish farming.	MOA MEPD Farmers
	There is illegal fishing especially at the basins from the large dams.	**Capacity:** Inadequate monitoring of fishing from the water bodies**.**	Develop a program to monitor fishing along the country's rivers and water bodies. Impose heavy fines for offenders to discourage illegal fishing. Work with other stakeholders to discourage illegal fishing such as dam operators and police officers.	MOA Dam operators RSP Communities
Draft Summary report on the Swaziland National Agricultural Investment Plan, 2014	Low agricultural productivity.	**Capacity:** Ineffective research and extension services. Low investment of public funds for agricultural productivity. Low technology adoption. **Governance:** Inadequate access to markets. Weak agricultural knowledge management.	Establish effective agricultural research and extension services. Improve financial investment and skills of the research and extension services. Build strong links between research, extension services and farmers. Identify and implement projects	MOA MEPD Private Sector Cooperating partners

Step 3.3 Action matrix for policies and processes				
Policy	**Associated challenges**	**Causes of ineffectiveness (governance, effectiveness and other)**	**Proposed Action**	**Responsible**
		Governance: Poor natural resource management.	to increase agricultural productivity. Develop and implement programmes to train farmers to practise commercial farming. Organise farmers and improve their access to markets. Work with key stakeholders to improve management of water, land and forest resources.	
	Shrinking contribution of the agriculture sector to GDP and food security in the country.	**Other:** Farmers on SNL practise subsistence agriculture. Inadequate production systems. Crop failure due dependence on unreliable rainfall.	Train farmers and support them to practise commercial agriculture. Develop and implement a crop and livestock diversification programme. Develop and invest in irrigated agriculture.	MOA
Draft National Climate Change Strategy and Action Plan, 2014.	Non alignment of policies and legislation with climate change issues.	**Capacity:** Need to budget and start the processes to review policies and legislation that is not yet aligned with climate change.	Identify policies and laws that need alignment with climate change issues. Start on a review process to align policies and laws with climate change issues.	MTEA Meteorology Department MOA DWA SEA
	Poor coordination on cross cutting climate change issues amongst water and agriculture sector.	**Governance:** no establishment of forums that would discuss climate change issues between sector players.	Strengthen and build upon existing forums to discuss the cross cutting issues on climate change.	MTEA

STEP 4 - Institutional and Policy Indicators

An important part of the AWM institutional and policy investigation tool is the public/donor budget analysis that helps assess policies and programmes introduced in a country in terms of implementation and political commitments towards achieving objectives and targets. The analysis focuses on two key dimensions of budget analysis, for which different indicators were developed as shown in the table below. The dimensions of the analysis are indicated below.

4.1 Strategic priorities and political commitment of government and donors

These indicators focus on investment priorities and political commitments assigned by governments and donors to irrigation and hydropower investment in i) comprehensive agricultural sector policy; ii) national water policy and; iii) in the international agreed goals and targets.

The indicators are used to show the public and donor investment priorities and commitment to water management for agriculture. These are: i) irrigation projects budget in agricultural public budget; ii) irrigation projects budget in total public budget; and iii) irrigation projects budget in total donor budget (IDB);

4.2 Efficiency of the public spending in the irrigation sector

This indicator focuses on the level of decentralization and participation in both sectors (2.1) as well as the timely utilization of budgetary appropriations (2.2) as a measure of efficiency of governance and the credibility of public budget. Table 4.1 shows all these indicators for which values have been assigned as analysed from the budget estimates document by the Ministry of Finance (2014).

Table 4.1 – Institutional and policy indicators

Dimensions	Sub-dimensions and indicators	Values
1. Strategic priorities and political commitment of government and donors.	✓ Irrigation projects budget in agricultural public budget (%)	25%
	✓ Irrigation projects budget in total public budget (%)	8.9%
	✓ Irrigation projects budget in total donor budget (%)	16%
2. Efficiency of the public spending in the irrigation and hydropower sector	**2.1. Decentralization and participation**	
	✓ Share of public spending in irrigation by Central government units (%)	Above 95%
	✓ Share of public spending in irrigation by Regional government units (%)	N/A
	✓ Share of public spending in irrigation by Local government units (%)	Less than 5%
	2.2. Timely utilization of budgetary appropriations	
	✓ Share of actual spending on planned public spending for irrigation projects (%)	45%

CONCLUSIONS

The agriculture sector is of utmost importance to the economy of Swaziland because it has the potential to improve livelihoods with a focus on poverty reduction in the rural communities. The potential within this sector to stimulate the economy and improve livelihoods of the population of Swaziland stems from the available land and water resources which have not been fully utilised.

The following conclusions were drawn from the analysis of the institutions and policies on AWM:

1. The country and development partners continue to invest in irrigation to upgrade small-scale farmers from subsistence to commercial farming in order to improve agricultural productivity. The investment in irrigation technology and building of large scale reservoirs is a costly initiative; the government therefore focuses on developing one big project at a time within the public budget constraint. Institutional arrangements have been made by the government to enable the implementation of many irrigation projects such as the construction of the Maguga dam in 2001 and the Komati Downstream Development Area with 6 800 hectares of irrigation area. Recently the government completed the construction of the Lubovane dam in 2009 and is developing 11,500 hectares of irrigated land for the cultivation of sugarcane and other crops transforming subsistence small-scale farmers into commercial farmers;

2. The management of water resources remains a very critical issue for the country to attain productive agriculture. The country has huge variations in terms of water resources availability. Some areas are climatically more favoured to receive good rainfall than others. Some areas are traversed by large perennial rivers while other areas face water scarcity. Drought and climate change further exacerbate the challenge of water availability variations thus demanding efficient utilisation of available water resources through enhanced monitoring of water use, use of water efficient and appropriate technologies and harvesting of surplus flow for utilisation during dry periods. There are a number of proposed management strategies and governance structures put in place but these are not yet fully operationalized. The hydrological network is old and requires upgrading, water accounting is not adequately carried out, the river basin institutions are not yet fully operational, water permits monitoring is not fully done, and a water pricing system has not been implemented. Thus, the system for water management needs to be improved in order to increase agricultural productivity;

3. The cross cutting nature of water requires efficient water resources management by involving many stakeholders. This often presents a challenge of overlaps in roles and responsibilities of the different ministries and their associated institutions. Government ministries, environment organizations, and parastatals have overlapping roles. An example of this is water quality monitoring; the Department of Water Affairs has a responsibility to monitor while SEA has a similar responsibility. Wetland protection is a responsibility of the Forestry Department, SEA, the Swaziland Trust Commission and the DWA. These overlapping responsibilities call for greater collaboration between the institutions to minimize conflicts and enhance optimum protection and management of the resources;

4. The management of land still remains a challenge in the country. The management of land is also cross cutting with overlapping responsibilities within ministries and local authorities. Catchment and rangeland management are the key issues in land management and there is need to improve land use, reduce stocking levels, remove alien invasive species, minimize activities in floodplains and then undertake activities to reduce soil erosion. There is need to develop land use plans and implement them to prevent the use of good fertile land for settlements and other non-agricultural activities. The analysis has shown that one of the key challenges affecting AWM is the unsustainable use of natural resources, namely water and land. Communal resources such as rangelands and community forests face severe management problems. There is therefore a need to upscale management of natural resources, develop good collaboration and coordination between the key stakeholder institutions and establish effective governance structures;

5. Many of the institutions analyzed in this assessment, such as MOA, DWA and the river basin institutions, lacked adequate financial capacities to carry out their various tasks efficiently. The parastatals are also government funded and this poses a challenge when the government is faced with financial challenges, as was the case from 2009 until 2012. Without adequate funding, service provision is greatly minimized and working equipment is not maintained, the availability of working tools and equipment is also greatly impacted. The once vibrant government systems are now in dilapidated states due to limited availability of resources and the limitation in running costs negatively impacts availability of working tools;

6. The bureaucracy in government institutions is also a limitation. For example, even when financial resources are allocated, the procedures for procurement are lengthy and this slows down project implementation and reduces productivity;

7. The government receives external financial support from development partners (e.g. FAO, EU, and UNDP). These funds are very helpful. However, there is a need to mobilize additional funds from more funding sources due to an existing financial gap. A water pricing policy and other local mechanisms of generating funds have to be put in place;

8. Technical capacity is another challenge faced by most institutions. The government has reduced her commitment to training its staff members due to other pressing priorities in the government agenda. Shortage of skills and capacity gaps are pronounced in some institutions and fields thus there is a need to undertake a skills gap analysis and then develop training plans which can be funded by the government and other partner organizations;

9. The creation of new institutions requires careful preparation in order to enable operations of the institution. Some institutions have been created by law but are not yet fully functional due to lack of financial and technical support to carry out their mandate. An example is the establishment and operation of river basin institutions. While many of the policies that have been assessed in this study are giving recommendations for institutional reforms, it is important that the resources in terms of financial and technical resources are put in place to operationalize institutions. Also worth mentioning is that the new institutions must not be totally dependent on government

funding for their operations. Financial strategies must be put in place to enhance the performance of much-required new institutions;

10. The government is also investing in small and medium dams as indicated in the comprehensive agricultural policy and the food security policy. However, there is no governance structure in place for sustainable use of infrastructure. The accounting and monitoring of the water use is not in place. This needs to be addressed to ensure improved and sustainable AWM;

11. Carrying out appropriate research is a very important area required to improve agricultural productivity. However, there are some challenges in carrying out effective research in the Swaziland AWM sector. Besides the technical and financial challenges, there is lack of responsive research and no proper linkages with extension services and other stakeholders for the continuous communication of information to help improve the agriculture and water sector. The research policy has called for institutional reforms. Legal instruments must be developed in order to facilitate the required institutional change;

12. There is a need to improve extension services and capacitate the Rural Development Areas (RDAs) with the rehabilitation of structures, procurement of equipment, training of staff members to acquire skills in areas of identified skills gap and also providing the necessary operational budget to improve service delivery to help farmers in agricultural programs in crop, livestock and fisheries productivity;

13. Climate change adaptation and mitigation has not yet been mainstreamed in AWM strategies, plans and policies. The AWM sector has to implement climate change adaptation measures to enhance the resilience of farmers to adverse effects of floods and droughts. There is a need to build and implement coordinated early warning systems to communicate critical information to all stakeholders in a timely manner;

14. The aspect of data and information management concerning AWM is also an important area that needs addressing. Data is collected randomly by different institutions and stored unsystematically. Examples of collected data are rainfall data, river flows, weather forecasts and water storage in reservoirs. This data is collected by different stakeholders but it remains in the institution that collects the data. The data is collected using old systems which reduces the efficiency in the use of the data. The river flows in Swaziland are collected using analogue systems which require officers to get to the gauging station to download the data before the information can become available. There is need to improve the data collection system to near real time systems which will give almost immediate information to the farmers to enable efficient decision making. A new practice of data sharing must be developed in order for such important information to reach the farmers, MOA and other sector players within good time and not just to collect data to capture historic information. There is a need to improve data and information collection, management, sharing and coordination within the sector. Other areas of improvement include training, procurement of hardware and software, and putting in place a systematic way of sharing and releasing data;

15. Several policies on AWM that have been developed within the last decade are not enforceable. The policies are good for providing the necessary guidance required by the sector but they have to be upgraded to develop new laws that will enable enforcement of the pronouncements. Existing legislation should be updated and new legislation created so as to enable the implementation of the principles, institutions and management practices enshrined in the policies.

Final Action Matrix

The final action matrix organizes information gathered through steps 3.1 to 3.3 in a single table listing proposed actions to solve problems in the agricultural water sector according to the institution/actor responsible for its implementation. Table 5.1 presents the final action for AWM in Swaziland.

Table 5.1. – Step 5.1. Final action matrix for AWM in Swaziland.

Responsible	Proposed actions
Ministry of Agriculture	Lobby for increased budget allocation from the government for recurrent activities to improve extension and research services. Develop a comprehensive Agriculture Act to give enforceable guidance to the agriculture sector. Develop management information systems for the collection and sharing of AWM information such as river flow data, water storage data, rainfall, weather information and improve communication networks even at the rural development areas to create links with all stakeholders. Develop data sharing protocols and define responsibilities for relevant key stakeholder institutions in AWM. Develop regulations and update and develop legislation to facilitate enforcement of the policies developed within the agriculture sector, and to enable the implementation of institutional reforms within the various subsectors such as research, resettlement, and fisheries. Continue with the development of medium and small size dams. Develop and strengthen governance structures to optimise the benefits and increase sustainability of the small and medium earth dams as well as irrigation infrastructure. Develop an Irrigation Master Plan. Mainstream climate change adaptation in policies, legislations and programs.

	Promote conservation and good management of catchments and rangelands to minimise soil erosion and degradation to promote sustainable use of land resources. Develop partnerships with the private sector to help implement and finance projects in AWM. Undertake monitoring and evaluation for all implemented projects especially the irrigation projects to take stock of lessons learnt, to identify areas of improvement and ascertain both positive and negative impacts of the projects. Empower the highveld and middleveld famers by subsidizing farming inputs to improve rain-fed maize productivity to ensure food security for the country. Improve partnership and coordination with UNISWA and other research partners to improve knowledge base and get new information and technologies to improve AWM. Develop a training plan for all skills needed in the Ministry and mobilise funds for scholarships to train personnel.
Department of Water Affairs.	Mobilise funds to operationalize the river basin institutions. Undertake water accounting to improve water resources planning and direct appropriately future water development projects. Continue with the plans to further develop large water infrastructure to support agriculture and hydropower projects and ensure sustainability in the operation and maintenance of such infrastructure. Promote and implement investment in rainwater harvesting of surplus flows for AWM. Develop and maintain a management information system. Engage in data sharing protocols with the Ministry of Agriculture, National Meteorology Department and other key stakeholders in the sector. Mainstream climate change adaptation in policies, legislations and programs. Follow up on the gazetting and operationalizing of the Water Act regulations including the water pricing regulations. Strengthen operations and maintenance of large dams to ensure efficiency and sustainability of dams and related water infrastructure. Develop long term water investment strategic plan that government can commit to funding, a similar initiative to the Swaziland National Agriculture Investment Plan.

Swaziland Environmental Authority.	Revive inter-sectoral collaboration committees with key stakeholders in AWM. Improve monitoring and inspection on projects in AWM to improve compliance with environmental protection laws, policies and regulations. Enhance the carrying out of Strategic Environmental Assessments for the long term plans in the sector. Promote improved catchment management to minimize erosion and enable sustainable use of resources.
Ministry of Natural Resources & Energy	Revision of stream bank regulations to outline enforcement mechanism and other activities that may affect rivers and streams. Improve power generation to minimize the adverse impacts of over reliance on other States. Enhance and develop incentives for development and use of renewable energy sources.
Ministry of Economic Planning &Development.	Continue to support and invest in the AWM and increase irrigation to increase agriculture productivity. Mobilize funds from cooperating partners to invest in AWM in Swaziland. Improve monitoring of the implementation of projects and build capacity for improved project management to increase delivery. Support the use of special project implementation institutions to fast track project implementation and delivery. Develop and implement a comprehensive monitoring and evaluation program for all government supported projects.
SWADE	Develop good collaboration and coordination with key stakeholder institutions to minimise overlaps and institutional tensions. Develop good staff retention systems to minimise high turnoverrate of executives. Continue with project implementation and capacity building of communities for productive AWM.
River Basin Authorities	Mobilise funds for operation. Monitor water use, promote water conservation and monitor adherence to water permit allocations.
Swaziland Meteorological Services	Improve early warning systems for AWM as an adaptation strategy to climate change.

	Develop data sharing protocols and MOUs with institutions in AWM.
Ministry of Tourism and Environmental Affairs - Forestry Department	Promote good catchment management practises such as removal of alien invasive species. Improve management of communal forestry resources.

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Appendix on the Budget Analysis

Capital Projects within the Ministry of Agriculture				
	Funding Sources			
Project Name	**Government (Emalangeni)**	**External (Emalangeni)**	**Irrigation projects within MOA**	**Externally Funded Irrigation projects**
Climate Smart Agriculture		SZL 3,505,000.00	SZL 3,505,000.00	SZL 3,505,000.00
Nursery at Ntondozi		SZL 450,000.00	SZL 450,000.00	SZL 450,000.00
Livestock identification		SZL 553,000.00		
Innovative beef chaiin schemes		SZL 3,000.00		
Komati Downstream Development Project	SZL 20,000,000.00		SZL 20,000,000.00	
Lower Usuthu Downstream Development	SZL 85,000,000.00	SZL 14,646,000.00	SZL 99,646,000.00	SZL 14,646,000.00
Heavy Plant Machinery and Earth dam construction equipment	SZL 7,000,000.00		SZL 7,000,000.00	
Water and irrigation development at Singangeni, Mpuluzi, Gege, Ngcoseni&Nyamane	SZL 6,000,000.00		SZL 6,000,000.00	
Food Security Project	SZL 11,500,000.00	SZL 100,000,000.00		
Lower Usutgu II Extenstion	SZL 18,000,000.00		SZL 18,000,000.00	
Totals	**SZL 147,500,000.00**	**SZL 119,157,000.00**	**SZL 136,601,000.00**	**SZL 18,601,000.00**
Total Internal and External Funding for capital projects in Agriculture.	**SZL 266,657,000.00**			

	Internal Sources	External Sources	Total
Ministry of Agriculture recurrent budget	SZL 270,154,000.00		**SZL 270,154,000.00**
Ministry of Agriculture capital project budget	SZL 147,500,000.00	SZL 119,157,000.00	**SZL 266,657,000.00**
Total Agriculture budget (recurrent and capital)	SZL 536,811,000.00		**SZL 536,811,000.00**
National recurrent budget 2014/2015	SZL 10,613,213,000.00		**SZL 10,613,213,000.00**
National capital project 2014/2015	SZL 2,550,308,000.00	SZL 1,205,716,000.00	**SZL 3,756,024,000.00**
Total Government Budget			**SZL 14,369,237,000.00**

Capital Projects in the Ministry of Natural Resources & Energy		
	Funding Sources	
	Government (Emalangeni)	**External (Emalangeni)**
Water Management Institutional Reforms	SZL 3,020,000.00	
Feasibility Study for Mkhondvo and Nondvo Dams	SZL 8,000,000.00	
Design & Construction of offices and houses for the management of the Lubovane dam	SZL 5,600,000.00	
Mini Micro Hydropower Study	SZL 3,000,000.00	
Total	**SZL 16,620,000.00**	

Capital Projects in the Ministry of Economic Planning & Development		
	Funding Sources	
	Government (Emalangeni)	**External (Emalangeni)**
Mhlume Siphon 4		SZL 58,500,000.00
Malkerns Canal Rehabilitation		SZL 115,500,000.00
Swaziland Agricultural Survey	SZL 8,458,000.00	
Total	**SZL 8,458,000.00**	**SZL 174,000,000.00**
Grand Total	**SZL 182,458,000.00**	

Capital Projects in the Ministry of Defense		
	Funding Sources	
	Government (Emalangeni)	External (Emalangeni)
Rehabilitation of Mbuluzi Water Canal & water treatment	SZL 5,000,000.00	
Total	**SZL 5,000,000.00**	
Grand Total	**SZL 5,000,000.00**	

Correctional Services		
	Funding Sources	
	Government (Emalangeni)	External (Emalangeni)
Irrigation infrastructure for Big Bend & Matsapha	SZL 2,780,000.00	
Total	**SZL 2,780,000.00**	
Grand Total	**SZL 2,780,000.00**	

	Percentage	Budget for irrigation projects
Percentage of irrigation projects in agriculture budget	**25.45%**	SZL 136,601,000.00
Percentage of irrigation projects in national budget	**8.92%**	SZL 335,001,000.00
Percentage of irrigation projects in donor funding	**15.97%**	SZL 192,601,000.00