SIXTH NATIONAL REPORT TO THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY PROJECT

MINISTRY OF TOURISM AND ENVIRONMENTAL AFFAIRS

ACKNOWLEDGEMENTS

Eswatini's Sixth National Report (6NR) to the United Nations Convention on Biological Diversity (UNCBD) has been compiled by the Project Management Unit. The 6NR is a compilation of the contributions that have been made by the different stakeholders that are working on the issues that are in relation to the country's customized Aichi Targets, as highlighted in the National Biodiversity Strategy Action Plan, Two (NBSAP 2). Data collection from stakeholders was done through the bilateral consultative meetings that were held between stakeholders and the project team, the regional workshops and a national workshop. The compilation of the 6NR has been managed and supervised by Ms. Hlobsile Sikhosana, who is the UNCBD Focal Point and Chief Environmental Coordinator in the Ministry of Tourism and Environmental Affairs. Special appreciation is extended to Mr. Emmanuel Dlamini, who is the Principal Secretary of the Ministry of Tourism and Environmental Affairs. Also appreciated are the members of the Project Steering Committee and the members of the Technical Committee. We further acknowledge the support and guidance from the United Nations Environment Programme (UNEP) especially from Mr Antony Kamau. The acknowledged project team and committees' members that played a significant role in compiling the report are:

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CONTENTS

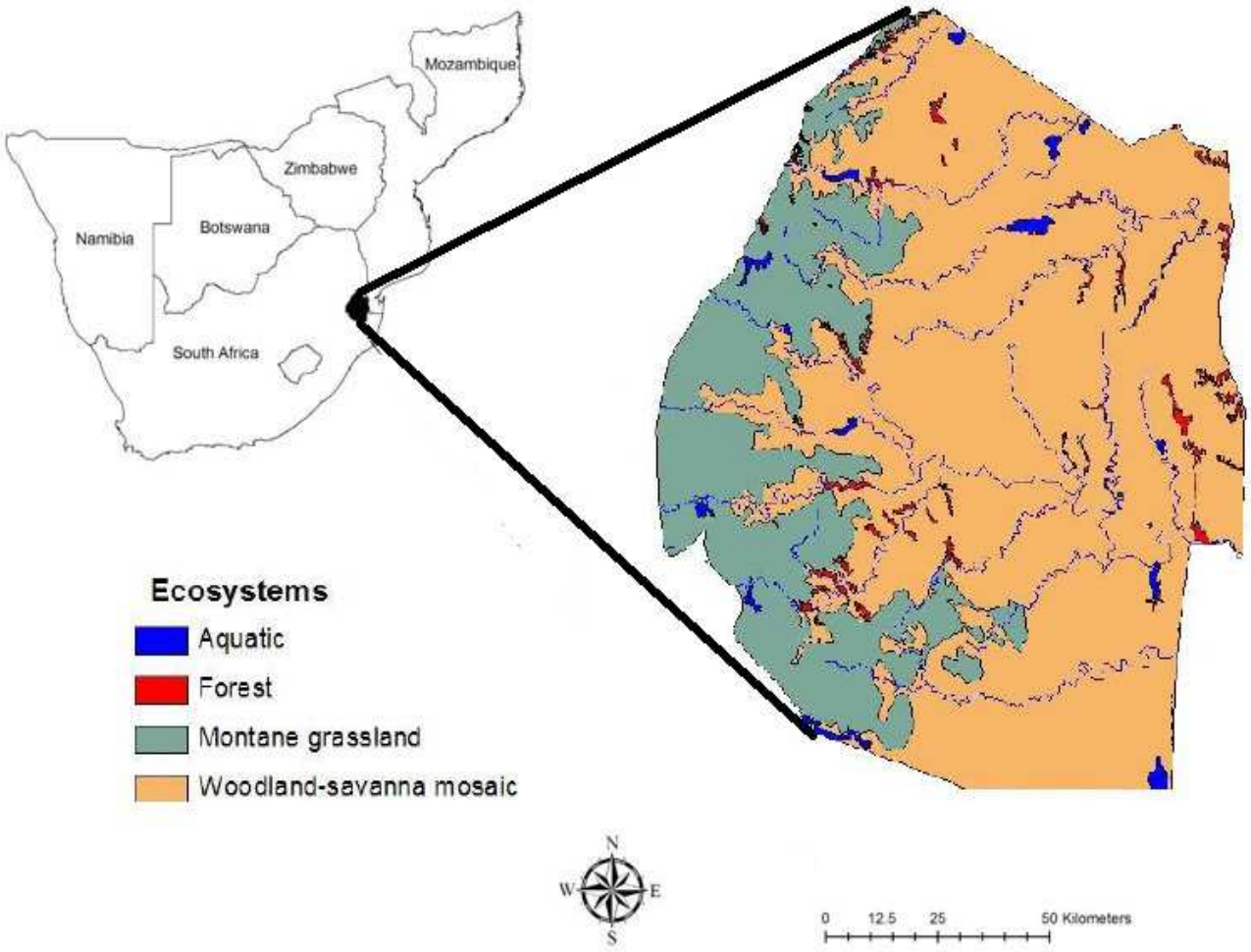
LIST OF FIGURES

LIST OF TABLES

ACRONYMS

CA	Conservation Agriculture
CANGO	Coordinating Assembly of Non-Governmental Organizations
CBO	Community-Based Organisation
CDP	Chiefdom Development Planning
CIC	Construction Industry Council
CMP	Compliance Management Plans
CSA	Climate Smart Agriculture
DWA	Department of Water Affairs
EEA	Eswatini Environmental Authority
EERA	Eswatini Energy Regulatory Authority
EIA	Environmental Impact Assessment
EMPs,	Environmental Management Plans
EMS	Environmental Management Systems
ESNAU	Eswatini National Agricultural Union
ESWASA	Eswatini Standard Authority
ENTC	Eswatini National Trust Commission
ERA	Eswatini Revenue Authority
ESD	Education and Sustainable Development
ESWADE	Eswatini Water and Agricultural Development Enterprise
ESWSC	Eswatini Water Services Cooperation
ETA	Eswatini Tourism Authority
FDI	Fire Danger Index
IAPs	Invasive Alien Plant Species
IAs	Invasive Alien species
ICDF	International Cooperation and Development Fund
ITEC	Indian Technical and Economic Cooperation
LDN	Land Degradation Neutrality
LMB	Land Management Board
MEA	Multilateral Environmental Agreements
MoA	Ministry of Agriculture
MoCTI	Ministry of Commerce Trade and Industry
MoEPD	Ministry of Economic Planning and Development

MoET	Ministry of Education and Training
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoHUD	Ministry of Housing and Urban Development
MoNRE	Ministry of Natural Resources and Energy
MoTAD	Ministry of Tinkhundla Administration and Development
MoTEA	Ministry of Tourism and Environmental Affairs
MESA	Mainstreaming Environment and Sustainability in African Universities
NAMBoard	National Agricultural Marketing Board
NBSAP	National Biodiversity Strategy Action Plan
NCC	National Curriculum Centre
NDS	National Development Strategy
NEEP	National Environmental Education Programme
NSWMS	National Solid Waste Management Strategy
NWA	National Water Authority
ODS	Ozone Depleting Substances
PA	Protected Area
PELUM	Participatory ecological land use management
POPs	Persistent Organic Pollutants
PRSAP	Poverty Reduction Strategy and Action Plan
PWAs	Protection Worthy Areas
RDA	Rural Development Area
SANU	Southern African Nazarene University
SOER	State of the Environment Report
SNL	Swazi Nation Land
SNPAS	Strengthen National Protected Areas System
SSDIG	Strategy for Sustainable Development and Inclusive Growth
TFCA	Trans-frontier Conservation Area
THA	Traditional Healer's Association
THO	Traditional Healer's Organisation
TPS	Town Planning Schemes
UNCBD	United Nations Convention on Biological Diversity
UNEP	United Nations Environment Programme
UNESWA	University of Eswatini



Map of Eswatini showing the distribution of the four ecosystems (Adopted from the NBSAP 2).

FOREWORD

Gratitude is expressed by The Ministry of Tourism and Environmental Affairs (MoTEA) on behalf of the Eswatini Government to the United Nations Environment Programme (UNEP) and the secretariat to the Convention on Biological Diversity (CBD) for the technical support and guidance towards the implementation of the first National Biodiversity Strategy and Action Plan during the period from 2001 to 2012 and for the revision of the second National Biodiversity Strategy and Action Plan (NBSAP II 2016 – 2022).

Eswatini is a small (17, 364 km^2) country, which is rich in the diversity of flora and fauna. A great proportion of the Southern Africa's plant and animal species are found in the country. A proportion of the eastern part of the country forms part of the Maputaland Centre of Plant Diversity which is one of the World's "hotspots" of floral, as well as faunal species richness and endemism. The western part of the country is part of the Drakensberg Escarpment Endemic Bird Area, as well as the Barberton Centre of Plant Diversity. Surveys conducted in the country have recorded 14 phyla to date. About 265 families and about 1,300 genera of arthropods and 813 species (445 genera in 144 families) of vertebrates have been recorded. In the plant taxa, there are 3,678 plants that have been recorded in the country and of these 12 species are endemic. Eswatini's biodiversity has been markedly and categorically been threatened by anthropogenic and climate change incidents. Considering that there are 89 species of vertebrates and 305 species of plants that are listed in national Red Data Lists, there is a need to mitigate the threats and impacts of biodiversity loss and to ensure that the country's biodiversity, ecosystems and habitats are properly managed. The MoTEA is responsible for that and has mandated some responsibilities to its agencies, the Eswatini National Trust Commission (ENTC) and the Eswatini Environment Authority (EEA).

The country has enacted numerous laws and crafted several policies and strategies with the aim to conserve and safeguard biodiversity. Furthermore, Eswatini has been able to establish three Trans-frontier Conservation Area (TFCAs) focusing on the eco-system wide management approach in areas that have significantly high biodiversity which is shared with Mozambique and South Africa. At the national regional levels, the Ministry of Tinkhundla and administration is integrating community based natural resources management (CBNRM) into the chiefdom development plans (CDPs). The country's protected area has increased from 3.9% in 2017 to 4.26% in 2018. With regards to community initiatives, efforts have been made to establish the first community-based Conservation Management Area at Shewula. With regards to the implementation of NBSAP 2, the country acknowledges that the biodiversity awareness (Target 1) and NBSAP II (Target 17) development activities are on track to exceed their targets. Also the biodiversity mainstreaming (Target 2) and Protected Area increasing activities (Target 11) are on track to achieve targets. There is need for great improvement to the other sixteen targets that have progress at an insufficient rate. As part of the country's commitment to conserve biodiversity the Ministry of Tourism and Environmental Affairs through EEA has a funding mechanism named the National Environmental Fund, while through ENTC ministry is strengthening the national protected areas systems amongst other projects.

The sixth national report is being presented with great pleasure to the Swazi Nation as an evaluation of the implementation of the NBSAP 2 and a guide on what needs to be done to effectively coordinate its implementation to contribute in the realization of our National Development Strategy, Vision 2022.

Hon. Moses M. Vilakati

Minister of Ministry of Tourism and Environmental Affairs

EXECUTIVE SUMMARY

The sixth national report is prepared at the request of the conference of parties decision, this is an evaluation of progress made towards the attainment of the national biodiversity goals and the associated Aichi Biodiversity Targets provided for in the revised National Biodiversity Strategy and Action Plan (NBSAP 2). Based on the NBSAP 2 implementation indicators, the initiatives done by communities, reports of Government Ministries, NGOs, State Parastatals and private companies, case studies, questionnaires and published literature, have been reviewed to determine progress towards the twenty Aichi Biodiversity Targets.

The key targets where significant indicators of successful implementation have been met at satisfactory progress are:

- **Target 1**, where the biodiversity awareness indicative activities are on track to exceed target.
- **Target 2**, where Biodiversity mainstreaming actions are on track to achieve target.
- **Target 11**, where increasing the Protected Areas is on track to achieve target.

Generally, the majority (16) of the national targets are in progress at an insufficient rate. This is attributed by factors such as under reporting due to poor coordination of biodiversity management efforts. Identified problems in the implementation of the NBSAP 2 include:

- Poor coordination of stakeholder's that are implementors of the indicative activities of the national targets result in institutions working in silos.
- Inadequate coordination for periodical reporting on biodiversity related activities.
- Inadequate evaluations for baselines, at mid-term and at the close of projects.
- Poor enforcement of legislation.
- Poor information sharing and access from some focal institutions.
- Poor and inconsistent reporting on biodiversity related issues.
- Limited institutional capacities (human, budgets) to implement action plans.
- Conflicting interests that exist in the EIA process management and enforcements.

Remedial actions in the NBSAP 2 implementation challenges as highlighted by some stakeholders are:

- An engagement platform is required, composed of a vibrant inter-ministerial and biodiversity stakeholders' to discuss progress and challenges around biodiversity management. This will counter against the current siloed operations and will enhance coordination for information and resources sharing in order to prioritise on critical biodiversity management aspects.
- Proper coordination of the implementation of the NBSAP 2 is critical. There is a need to develop a standardised reporting template that is comprehensive. The is a need to set up a central data deposit platform which will be available for view to all stakeholders but limited rights for downloads. This requires annual schedules for reporting and meeting for discussions.
- The authorities in charge of community leaders (Chiefs) must be sensitised on the importance of chiefs being accountable for communal natural resources management. Ownership and responsibility of communities to sustainable manage their natural resources has to be improved to curb the non-sustainable settlements and increase community participation in IAPs control.
- The full involvement of the surveyor generals and central statistics offices is needed in all activities so as to develop baseline data where none exists or update outdated one.
- The MoTEA has to address current non-cooperation by EEA in some activities by executing its regulatory and policy mandates to ensure that EEA cooperates and reports to the MoTEA. Failure to compliance, the government may consider freezing subventions until they comply as this is the case with other countries (South Africa, United States of America).

Section I. Information on the targets being pursued at the national level

I. Information on the targets being pursued at the national level

■ My country has adopted national biodiversity targets or equivalent commitments in line with the Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets

National Target

Target 1: By 2022, more than 70% of Eswatini nationals will be cognizant of biodiversity and ecosystems, their value and the steps they can take to conserve and use these sustainably.

Rationale for the national target

The general level of understanding on sustainable utilization of ecosystems, biodiversity and resources is thought to be insufficient, even though environmental issues receive some coverage in the media and forms part of the agenda in certain fora. This is possibly the result of the insufficient up-to-date information on the status of the country's biodiversity and ecosystems and the lack of understanding of the country's natural capital. To date, no baseline countrywide study has been carried out to determine the status of flora and fauna as well as the state of habitats. The few studies undertaken had limited coverage and their outcomes have been published in scientific journals, private libraries or environmental impact assessment reports. The nation needs to be aware of the status of its ecosystems and should be well positioned to take informed decisions with regards to sustainable use and management of these ecosystems. The curriculum in schools and institutes of higher learning needs more content on environmental issues. Initiatives like the Mainstreaming of Environment and Sustainability in African Universities (MESA) are laudable but they need to build upon a stronger foundation that has anchored in the school system.

There is a need to monitor the current level of awareness on biodiversity in the country and work towards increasing it to the desired level. To raise awareness, initiatives and institutions that deal with public awareness on environmental issues need to be empowered and capacitated. The curricula of schools and tertiary institutions must be revised to include environmental issues. In addition, there should be clear unified messages at the highest governance level to instil behavioural change on issues of biodiversity and ecosystem services in order to instil behavioural change.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets (*Links between national targets and Aichi Biodiversity Targets*)

Main related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets (Please select one or more Aichi Biodiversity Target to which the national target is indirectly related.)

1 ☐	6 ■	11 ■	16 ■
2 ■	7 ■	12 ■	17 ■
3 ■	8 ■	13 ■	18 ■
4 ■	9 ■	14 ■	19 ■
5 ■	10 ■	15 ■	20 ■

Other relevant information

Target 1 key stakeholders involved in its implementation and monitoring are the Ministry of Tourism and Environmental Affairs (MoTEA) (the Section of Forestry; the parastatals Eswatini National Trust Commission (ENTC); Eswatini Tourism Authority (ETA)), Ministry of Education and Training (MoET) (National Curriculum Centre (NCC)), Ministry of Tinkhundla Administration and Development (MoTAD), University of Eswatini (UNESWA), NGOs, Media, Mainstreaming Environment and Sustainability in African (MESA), Ministry of Agriculture (MoA), Private sector and Traditional leaders.

National Target

Target 2: By 2022, biodiversity values have been integrated into all national, regional, municipal and rural development and poverty reduction strategies and planning processes and are being incorporated into accounting and reporting systems.

Rationale for the national target

Biodiversity and ecosystem services are perceived as 'public goods' of which no maintenance is required and there is an endless supply. As much as biodiversity and ecosystems make a major contribution to livelihoods, health and other spheres of life, this contribution is rarely accounted for. Hence where management is required to ensure ecosystems are sustainable, this is never budgeted for or done and is generally seen as an expense that can be foregone. Environmental issues like biodiversity and ecosystem management when compared with other national priorities like food security, universal health and free primary education, they are usually perceived as low priority hence minimal budget allocation. This calls for periodical awareness raising and capacity building initiatives at the policy level to change the status quo.

With decision-makers at all levels being more aware of the value of ecosystems, biodiversity and the strategies for sustainable use, they will be able to support their plans and budgets. The knowledge on the level of support provided by ecosystem services, development and poverty reduction strategies will incorporate these services. These strategies may even include actions to improve the quantity and quality of some of the ecosystem services.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ■	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ■	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 2 key stakeholders involved in its implementation and monitoring are; the MoTEA (the Section of Forestry; the parastatal Eswatini Environmental Authority (EEA)), the Ministry of Economic Planning and Development (MEPD) (Central Statistics Office), Ministry of Natural Resources and Energy (MoNRE), Community-Based Organisation (CBOs), Ministry of Commerce Trade and Industry (MoCTI), Cabinet, Parliament, MoA, MoTAD, and Ministry of Housing and Urban Development (MoHUD).

National Target

Target 3: By 2020, positive incentives that benefit biodiversity are encouraged, while harmful incentives, including subsidies, are eliminated or reformed.

Rationale for the national target

Government has had in place several programmes that were intended to assist the people of the country, but their implementation have over the years proved to be harmful to biodiversity. There is a need to reform or phase out such incentives and enhance those that have positive impacts on conservation. This requires an assessment of the country's policies and practices to ensure they are in harmony with the principles of the Convention of Biodiversity (CBD).

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ■	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 3 key stakeholders involved in its implementation and monitoring are; the MoTEA (Section of Forestry; ENTC; EEA), MoNRE (Eswatini Energy Regulatory Authority-SERA), Eswatini Revenue Authority (ERA), MoA, UNESWA, MoCTI, Parliament, King's Office, MoEPD, MoTAD, MoHUD.

National Target

Target 4: By 2022, the Government of Eswatini, municipalities, businesses, local communities and stakeholders at all levels have developed and are implementing plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Rationale for the national target

Even though the general populace at individual, homestead and business levels rely on biodiversity and ecosystem services, the impacts of this reliance have not been sufficiently studied or documented. Unsustainable utilization of biological resources has been cited as one of the pressures and threats on the country's biodiversity. Long term plans and actions are needed to bring the utilization of natural resources to sustainable levels, that is, reduce the country's "ecological footprint.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ■	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ■	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 4 key stakeholders involved in its implementation and monitoring are; MoTEA (Section of Forestry; EEA), MoHUD, King's Office, Deputy Prime Ministers (DPM) Office, MoNRE, MoA, Private sector, Eswatini Water and Agricultural Development Enterprise (ESWADE), MoCTI, Traditional Healer's Association (THA) and Traditional Healer's Organisation (THO).

National Target

Target 5: By 2022, the rate of loss, degradation and fragmentation of all Eswatini's natural habitats is at least halved and where feasible brought close to zero.

Rationale for the national target

The most conspicuous form of land degradation in Eswatini is soil erosion, in particular gully erosion. However, degradation of landscapes, natural vegetation and forests is widely encountered. Poor range management practises such as overstocking lead to overgrazing of the rangelands. Almost a third of the country and more than half of all communal grazing land has a serious or very serious erosion status. Certain types of forests are reported to be degraded and showing a decrease in regeneration. Climate change is expected to have a further negative effect on land degradation through reduction of vegetation cover and changes in species composition, as well as through increased deforestation, desertification and disaster hazards.

The conversion of natural habitats to other uses is another significant cause of biodiversity loss in Eswatini. Land use change alters or destroys natural habitat, frequently with secondary consequences of degradation and fragmentation of remaining habitats, all of which result in losses of biodiversity, decline in ecosystem health, and changes in the provision of ecosystem services. Extensive fragmentation of the savanna habitat by intensive agriculture also poses a threat to the loss of biodiversity. Measures to reduce the loss of biodiversity through

habitat loss, degradation and fragmentation should be put in place. These will require multi-stakeholder involvement as well as human capacity and monetary inputs.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ■	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ■	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 5 key stakeholders involved in its implementation and monitoring are; the MoTEA (Department of Meteorology; Section of Forestry; ENTC), UNESWA, MoNRE, MoA (Cotton Board; ESWADE; Department of Land Use Planning), MoEPD, MoTAD, Media houses.

National Target

Target 6: By 2022 all of Eswatini's aquatic resources are sustainably managed.

Rationale for the national target

A small percentage (about 1%) of the country's aquatic habitats is under legal protection. The aquatic and forest ecosystems have the highest number of species per unit area; however, the aquatic ecosystem is the least studied in the country. Aquatic habitats are under threat mainly from pollution, habitat alteration and unsustainable harvesting of resources.

Aquatic systems are under threat from agricultural development as wetlands are drained for development (agriculture, roads and settlements) or are negatively affected by changes within their catchment.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ■	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ■	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ■	15 ☐	20 ☐

Other relevant information

Target 6 key stakeholders involved in its implementation and monitoring are; MoNRE (Department of Water Affairs (DWA); Eswatini Water Services Cooperation (ESWSC); River Basin Authority), MoA (ESWADE; Section of Fisheries).

National Target

Target 7: By 2022, all areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of Eswatini's biodiversity.

Rationale for the national target

The country is in the process of introducing conservation agriculture but the extent to which this new technology has been adopted is yet unknown. There is further need to utilize existing agricultural lands for maximum productivity as well as revisions in policy with regards to large farms and small homestead level farms. There is debate as to which, between few large plantations and a large number of small plots is more productive; this needs to be investigated for Eswatini and the best approach adopted. Agriculture, aquaculture and forestry must be made more productive and sustainable. The land tenure system of the country is such that smallholder farmers are usually in Swazi Nation Land and commercial farmlands in Title Deed Land. The management systems are usually not consistent between the two land tenure systems hence there need for guidance on sustainable management of the country's agriculture, aquaculture and forestry to ensure conservation of the country biodiversity in all levels.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ■	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ■	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 7 key stakeholders involved in its implementation and monitoring are; the MoTEA (Section of Forestry; Department of Meteorology), Private Sector (forest industry; sugar industry), Farmers Union, MoA (National Agricultural Marketing Board (NAMBoard); Cotton Board), and UNESWA.

National Target

Target 8: By 2022, all forms of pollution in Eswatini have been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Rationale for the national target

The country has put in place pollution control legislation whose effectiveness has not been determined. To bring pollution levels down to acceptable levels the ecosystems that are polluted must be prioritized and the pollutants and their sources determined. Behavioural changes must be undergone by the polluters and general citizenry and these may come as a result of increased awareness as well as legislative deterrents.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ■	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 8 key stakeholders involved in its implementation and monitoring are; MoTEA (Department of Meteorology; EEA), Ministry of Health (MoH), MoA (Departments of Crop Production and Livestock; Section of Fisheries), MoCTI, Farmers Union, MoNRE (DWA; ESWSC), ERA (Customs department), MoTAD and Municipalities.

National Target

Target 9: By 2022, invasive species that are alien to Eswatini, and their pathways, are identified and prioritized; priority species are controlled or eradicated, and measures are put in place to manage pathways to prevent their introduction and establishment.

Rationale for the national target

In 2003, the problem of the proliferation of IAPs was noted in the Northern Hhohho region. In 2005/2006 the Government of Eswatini declared IAPs a national disaster. This was then followed by formulation and implementation of a Capital Project to control and manage invasive plant species. An estimated total area of 15,000 ha was cleared within Swazi Nation Land (SNL) and over 4,000 ha within protected areas. The project outputs were creating public awareness, field combating operations, survey data set, map of selected IAPS in Eswatini including species accounts, brief description of species, spatial distribution and intensity of infestation. In addition, two documents were produced: A draft National Strategy for the Control and Management of IAPS and a draft Forestry Bill of 2010. The project was temporarily stalled due to administrative challenges, however, efforts to resuscitate the project are underway. Within protected areas, control and management of IAPS is on-going.

Invasions in aquatic systems from exotic fish species, such as the largemouth bass (*Micropterus salmoides*) can have devastating effects on local fish populations. The introduced red claw lobster (*Cherax quadricarinatus*) in

the Sand River Dam near Mhlume requires a study to determine the reported adverse effects of the introduction of the species. Despite the efforts made to control and manage alien invasive species, more work needs to be done.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ■	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 9 key stakeholders involved in its implementation and monitoring are; the MoTEA (ENTC), UNESWA, NGOs, MoA, MoTAD, MoNRE (DWA), Kings Office, Media Houses, Private companies (Sugar, Citrus and Forest plantations), Communities and Municipalities.

National Target

Target 10: By 2022 pressures on Eswatini's vulnerable and most valuable ecosystems such as (Savannah woodland Mosaic forests and wetlands) are identified and prioritized; priority pressures are controlled or eradicated.

Rationale for the national target

Climate change and anthropogenic activities are some of the major pressures on ecosystems and are expected to drive changes in biodiversity in the country. Projected impacts on ecosystems from selected global climate models show a westward shift and shrinking of both the grassland and savannah ecosystem types of Eswatini. The country is projected to see the introduction of a tropical very dry forest type of ecosystem in the eastern part of the country replacing half of the current subtropical ecosystem. The savannah ecosystem is ranked third

most important (GOS-SEA, 2001) while the first ranked ecosystem (grassland) faces the greatest number of threats.

An assessment of the country's ecosystems will determine their levels of vulnerability and prioritization of efforts to control and manage these pressures so that ecosystem integrity is maintained. Adaptation measures for these ecosystems needs to be developed.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ■	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ■	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 10 key stakeholders involved in its implementation and monitoring are; the MoTEA (Department of Meteorology; ENTC), UNESWA, NGOs and Private sector.

National Target

Target 11: By 2022, at least 20 per cent of Eswatini's land area, especially areas of importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Rationale for the national target

Covering an area of 17,364 km^2, Eswatini has 2,600 species of flowering plants, approximately 121 species of mammals, 153 amphibians and reptiles, 350 species of birds and 60 species of fish; making her unique in floral and faunal species richness. The country also contains one of the largest remaining intact altitudinal gradients of natural ecosystems in Southern Africa and is the only place where this continuum is concentrated in relatively

short distance (of about 200 km). Such an intact gradient holds great significance for biodiversity conservation because it allows ecological processes such as migration and gene flow and provides the opportunity for population shift as an adaptation to climate change. This considerable biodiversity is contained in four distinct ecosystems; namely montane grassland, savannah-woodland mosaic, forests and aquatic systems.

Despite the global significance of its biodiversity, Eswatini's Protected Area (PA) estate is comprised of very small and vulnerable PAs poorly distributed across ecosystems and formal PAs cover only 4.26% of the country. There is, therefore, a need to expand the PA estate, while strengthening PA management competencies. This in turn will require the participation of a broad range of stakeholders, including private landholders, local communities and the tourism industry to establish a new State PA, private and community managed reserves. A landscape approach is needed to strategically place these different PAs in proximity to one another and manage land in immediately adjacent areas to reduce threats to biodiversity and improve connectivity between PA sites. The recently inaugurated GEF-funded SNPAS project is a step in achieving this target. This project seeks to strengthen the existing protected area network and improve the level of protection for biodiversity in reserves. Community Eco-tourism Areas connected to PAs are Shewula and Ngwempisi Gorge and these are the only ones that fall within the top priority Protection Worthy Areas. It should be noted though that there are current efforts underway under the Lubombo Conservancy to establish an additional community conservation area in Mhlumeni.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ■	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 11 key stakeholders involved in its implementation and monitoring are; the MoTEA (ENTC; ETA), UNESWA, NGOs, MoA, MoTAD, MoNRE, Big Game Parks (BGP), Chiefs, Private farm owners, Land Management Board, Rancher's association and ERA.

National Target

Target 12: By 2022, the extinction of species known to be threatened in Eswatini has been prevented and their conservation status, particularly of those that are endemic and those most in decline, has been improved and sustained.

Rationale for the national target

Eswatini has prepared two red data lists; one for plants done in 2002 and the other on vertebrates done in 2003. The former list has been updated for trees (Loffler and Loffler, 2005). A total of 132 species of vertebrates are listed in the Red Data list; consisting of 11 species of fish, 4 species of amphibians, 14 species of reptiles, 55 species of birds and 48 species of mammals. These threatened species constitute 9-20% of the total vertebrates occurring on the country. A total of 305 species of plants have been included in the list, representing 9% of the total plant species richness.

Despite all efforts to conserve habitats and ecosystems, there is a continued concern with the species that constitute these ecosystems. Many species in the country have declining populations, some of which have already gone extinct such as the African wild dog (*Lycaon pictus*). Threatened species are useful indicators of the overall health of ecosystems and serve, with varying degree of success, as "umbrellas" for the protection of other organisms and ecosystems. This involves a thorough understanding of the species, their habitats, the pressures and threats they are facing and the management of these pressures and threats. For some species degraded habitats may have to be restored. The achievement of this target will be evidenced by the removal of species from the red data lists with no new species being added to the lists.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ■	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 12 key stakeholders involved in its implementation and monitoring are; the MoTEA (Section of Forestry), Eswatini Game Ranchers Association (SGRA), NGOs, Private companies (Sugar, Citrus and Forest plantations), UNESWA and MoNRE, Big Game Parks (BGP).

National Target

Target 13: By 2022, the genetic diversity of cultivated plants and domesticated animals and their wild relatives, including other socio-economically as well as culturally valuable species, in Eswatini, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Rationale for the national target

The gene pools of plants and animals that are culturally and economically important need to be maintained by conserving the genetic diversity of existing species and that of their wild relatives. The country has made initiatives for keeping germplasm of wild and crop plants; however, more efforts are still needed. A plant genetic resource centre has been established but to date, it is still under resourced. A botanic garden has been planned; however, availability of resources is delaying its establishment. A National Tree Seed Centre was established in 1994 but it is also under resourced. Some government and private ranches are engaged in multiplying and keeping stocks of special breeds of cattle (Nguni). These programmes need to be assisted and expanded so they have all the important plant and animal species in their "storage". There should be in situ and ex situ stocks of both the animal and plant species.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ■	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 13 key stakeholders involved in its implementation and monitoring are; the MoTEA (Section of Forestry), Farmers Group (ESNAU), Private companies (Sugar, Citrus and Forest plantations), UNESWA, MoNRE, Big Game Parks (BGP), and MoA (Research division; Section of Fisheries).

National Target

Target 14: By 2022, Eswatini's ecosystems that provide essential services are restored and safeguarded considering the needs of women and children, local communities and those of the poor and vulnerable.

Rationale for the national target

Naturally functioning ecosystems deliver valuable services and benefits to humankind. The loss and degradation of ecosystems has serious implications for the Eswatini society. The country's diverse economy; agriculture, forestry and manufacturing heavily rely on functional ecosystems. Furthermore, majority of the Eswatini population are heavily dependent on natural resources for their livelihoods. The overall socio-economic well-being of the people of Eswatini is dependent on the achievement of a balance between development and sustainable use of biodiversity.

Biodiversity and ecosystems play a role in building a sustainable future. They are critical infrastructure to support development. Raising awareness on the importance of ecosystem services and biodiversity to achieve development goals, ecosystem and biodiversity restoration and management as well as in-cooperating ecosystem services into development and planning processes as key strategic initiatives.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ■	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 14 key stakeholders involved in its implementation and monitoring are; the MoTEA (Section of Forestry; ENTC), NGOs, MoA, MoTAD, MoNRE (DWA), Academia, King's Office, MoEPD, Media and Ministry of Public Works and Transport (MoPWT).

National Target

Target 15: By 2022, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced in Eswatini, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Rationale for the national target

The high unemployment rate in the country and several other factors have placed a huge burden on the country's ecosystems. Where ecosystems are carrying beyond their capacity resulting in their resilience and productivity being reduced. A holistic multidimensional approach needs to be adopted to ensure that ecosystems are restored to sustainable levels. Legislation may need to be enforced better or modified to protect ecosystems, job-creation and self-help initiatives would need to be put in place to reduce dependence on ecosystems. This will have benefits in ensuring resilience to climate change as well as better provision of ecological services. The unintentional over utilisation of biodiversity and ecosystems also need to be addressed through periodic, awareness raising, public education and sensitisation measures at all levels.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1 ☐	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ☐
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ■	20 ☐

Other related Aichi Biodiversity Targets

1 ■	6 ☐	11 ☐	16 ☐
2 ☐	7 ☐	12 ☐	17 ■
3 ☐	8 ☐	13 ☐	18 ☐
4 ☐	9 ☐	14 ☐	19 ☐
5 ☐	10 ☐	15 ☐	20 ☐

Other relevant information

Target 15 key stakeholders involved in its implementation and monitoring are; the MoTEA (ENTC; Section of Forestry; Department of Meteorology), MoTAD, Local Authorities, MoA (ESWADE), Private sector, Municipalities, NGOs, Academia, Private sector and King's Office.

National Target

Target 16: By 2016, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational in Eswatini, consistent with national legislation.

Rationale for the national target

Eswatini is a Party to and has aligned herself to the precepts of the Nagoya Protocol. The protocol is in the process of being "domesticated" and operationalised. A draft ABS Bill was developed before adoption of the Protocol, hence, the need to finalise and harmonise it with the provisions of the Protocol. The country is currently conducting awareness raising initiatives to key stakeholders to facilitate accession and implementation of the Protocol. Domestication of the Protocol will ensure sharing of benefits when genetic resources leave the country and strengthen the ability of communities to benefit from the use of their knowledge, innovations and practises relating to the genetic resources.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1☐	6☐	11☐	16■
2☐	7☐	12☐	17☐
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other related Aichi Biodiversity Targets

1■	6☐	11☐	16☐
2☐	7☐	12☐	17■
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other relevant information

Target 16 key stakeholders involved in its implementation and monitoring are; the MoTEA (ENTC), MoA (Gene Bank), MoNRE, Traditional healers, Traditional authorities, UNESWA, Research institutions, Bio-traders, MoTAD, MCIT (Eswatini Standard Authority (ESWASA); Department of Intellectual Property), Local communities.

National Target

Target 17: By 2016, Eswatini has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Rationale for the national target

Stakeholder participation was a key element in the drafting of the NBSAP and it is desired that such continues to implementation. It is a key element to the acceptance of the document as a national policy. The Biodiversity Programme Implementation Committee (BPIC) was to vigorously "sell" the NBSAP to all stakeholders especially those in higher government offices and Parliament.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1☐	6☐	11☐	16☐
2☐	7☐	12☐	17■
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other related Aichi Biodiversity Targets

1■	6■	11■	16■
2■	7■	12■	17☐
3■	8■	13■	18■
4■	9■	14■	19■
5■	10■	15■	20■

Other relevant information

A consultative and participatory approach was adopted to formulate the second NBSAP which involved multiple stakeholders who were and are implementors of biodiversity management activities. The stakeholders include government ministries, parastatals, and NGOs. Coordination of the process was done by the Eswatini Environmental Authority (EEA), a parastatal/agency under the Ministry of Tourism and Environmental Affairs. The agency worked with the Biodiversity Project Implementation Committee (BPIC) which was the project steering committee. The committee comprises of representatives from key government ministries and departments as well as strategic stakeholder institutions working on biodiversity conservation, utilization and valuation. Individuals with special skills and or knowledge were drafted into a "think tank".

Target 17 key stakeholders involved in its implementation and monitoring are; Forestry and Meteorology Department in the Ministry of Tourism and Environment Affairs (MoTEA), Eswatini Environment Affairs (EEA) and Focal points of Biodiversity related Conventions.

National Target

Target 18: By 2022, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity are documented, respected and integrated into national conservation strategies.

Rationale for the national target

A great percentage (about 70%) of the country's population lives in rural areas and has a close relationship with biodiversity and ecosystems. Even those that live in towns and cities they maintain close ties with rural relatives and practices. People of Eswatini are also highly cultural, with a culture that is closely tied to biodiversity. Unfortunately, certain components of Eswatini culture and traditional knowledge are not documented, which makes incorporation into conservation initiatives difficult. For NBSAP to be effectively implemented it has to

take into account traditional knowledge and practises. In the drafting of the NBSAP stakeholders at all levels have been involved to ensure the incorporation of this important aspect.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1☐	6☐	11☐	16☐
2☐	7☐	12☐	17☐
3☐	8☐	13☐	18■
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other related Aichi Biodiversity Targets

1■	6☐	11☐	16☐
2☐	7☐	12☐	17■
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other relevant information

Target 18 key stakeholders involved in its implementation and monitoring are; the MoTAD, MoA (Section of Gene Bank), MoNRE, Traditional authorities, UNESWA, Bio-traders, Ministry of Sport, Culture and Youth (MoSCY), MCIT (Department of Intellectual Property) and MoET.

National Target

Target 19: By 2022, the knowledge, science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied in Eswatini.

Rationale for the national target

Though research institutions do work on the country's biodiversity and ecosystems this research has not been directly focussed on the issues of their values, function, status, trends and consequences. Resources need to be provided so that crucial research is carried out and information from researchers is made generally available and accessible to all. There is no defined national research agenda on the environment and or biodiversity and

no coordination of research efforts. The country needs to establish a framework for promoting research on environmental issues.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1☐	6☐	11☐	16☐
2☐	7☐	12☐	17☐
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19■
5☐	10☐	15☐	20☐

Other related Aichi Biodiversity Targets

1■	6☐	11☐	16☐
2☐	7☐	12☐	17■
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other relevant information

Target 19 key stakeholders involved in its implementation and monitoring are; the MoTEA (ENTC), MoET, Ministry of Labour and Social Security (MoLSS), MoCTI, Savannah Research Centre, MoA, and Big Game Park.

National Target

Target 20: By 2016 the NBSAP is fully integrated into the government's and implementing institutions' budgeting systems and alternative sources of funding are mobilized.

Rationale for the national target

The NBSAP is an important policy document that requires substantial funding and resources for its effective implementation. Stakeholders and implementing agencies must plan NBSAP into their budgets and exploit synergies with on-going initiatives to reduce costs.

Level of application

■ National

Relevance of the national targets to the Aichi Biodiversity Targets

Main related Aichi Biodiversity Targets

1☐	6☐	11☐	16☐
2☐	7☐	12☐	17☐
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20■

Other related Aichi Biodiversity Targets

1■	6☐	11☐	16☐
2☐	7☐	12☐	17■
3☐	8☐	13☐	18☐
4☐	9☐	14☐	19☐
5☐	10☐	15☐	20☐

Other relevant information

Target 20 key stakeholders involved in its implementation and monitoring are; the MoTEA (EEA), MoEPD, Focal Points of Biodiversity Related Conventions and Cabinet.

Section II. Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets

II. Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets

Effective Partially effective Ineffective

Describe a measure taken to contribute to the implementation of your country's national biodiversity

1.1 Measure taken.

Building technical know-how capacity on biodiversity issues

Target 1: By 2022, more than 70% of Eswatini nationals will be cognizant of biodiversity and ecosystems, their value and the steps they can take to conserve and use these sustainably.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- In building capacity, the government of Eswatini through the Management Services Division under the department of Establishment and Training in the Ministry of Public Service has been instrumental in providing opportunities for technical advancement in different specialties to civil servants and to a lesser extent to private and NGOs personnel.
- There have been several opportunities for in-service training under the environmental sector through the support from various development partners of the country such as the European Union, The International Cooperation and Development Fund in Taiwan (Taiwan ICDF), Thailand Technical Cooperation and the Indian Technical and Economic Cooperation (ITEC) have trained the general citizens, personnel from the civil service, private sector, and NGOs.

- Apex NGOs such as the Participatory ecological land use management (PELUM) and the Coordinating Assembly of Non-Governmental Organizations (CANGO) capacitate affiliating member NGOs.
- The Eswatini Environmental Authority (EEA) and the Church Forum Partnership Workshops (2014/15) were conducted in four towns and a total of 120 pastors were trained. The training workshops were to educate regional pastors on environmental issues and the role the church can play in environmental stewardship.
- Capacity building on waste management has been done for community police, litter wardens from waste hot spots and city rangers.
- The Government Ministries, local authorities, parastatals, and private companies do capacitate the public on biodiversity conservation related topics during cultural national events (maganu, incwala ceremonies) and trade fair.
- Several efforts have been done towards raising awareness on several initiatives at the national, regional and community level such as the:
    - Multiple radio programmes relating to biodiversity conservation and management which are continuously aired on the three major national radio channels done by different stakeholders (EEA,

Government department, parastatals, NGOs and private companies). Examples of such programmes include the PELUM programme on environmental sustainability, the ENTC programme on environmental conservation and the Forestry Department programme on forest conservation and ACAT for natural resources management.

- The print media (two large publishers and several smaller ones) produce newspapers that often publish biodiversity related articles such as those of Commemoration Days and their celebration events amongst others that are important in educating the general public. For the combined print media, the average readership is estimated to be about 100,000 which is a significant portion of the country's population. Of late, it has become a norm for print media houses to prepare articles for the commemoration of environmental days from the World wetland day to the Ozone day.
- The National Environmental Education Programme (NEEP) is an awareness initiative that incorporates updated topics on biodiversity management which is managed under Eswatini National Trust Commission (ENTC).
- The EEA data centre has been capacitated and equipped for it to deal with the collection and filing of biodiversity related documents such as EIAs, Legislations, environmental management plans of different scopes and literature documents. Furthermore, the EEA website has a Biodiversity Clearing House Mechanism.
- A lot of community-based awareness programmes are carried out by several stakeholders coming from different sectors that are involved in biodiversity conservation such as water, energy, environment, agriculture, health etc. These awareness campaigns are done as individuals and or through partnership efforts by the different stakeholders that include government departments, NGOs, private companies, communities and enforcement or development agencies. The target audience varies from minors (include kids not in zero grades) to elderly (retiree ages) people.
- The national museum under ENTC teaches about cultural activities that are important in the country's history and biodiversity utilization and management. The patrons of it range from minors to elderly.
- The Forestry Department does community outreach on forestry conservation, establishment, rehabilitation and forest management.

Relevant websites, web links and files

- http://www.gov.sz/index.php/departments-sp-1107500159/the-management-services-division-msd
- http://www.sntc.org.sz/programs/education.php
- https://matsapha.co.sz/world-environment-day-clean-up/
- http://www.pelum.org.sz/members/
- https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Other relevant information

- The National Environmental Education Programme (under the auspices of the Eswatini National Trust Commission) is mandated by the SNTC Act (No.9, 1972) to co-ordinate and promote Environmental Education in Eswatini. NEEP has the role of co-ordination, promotion and support of environmental awareness projects carried out by other organisations, both governmental and non-governmental. Headline activities undertaken by the NEEP consists but are not limited to the following:
  - Commemorative days celebrations - World Environment Day, Wetlands day, etc.
  - Environmental/ nature conservation radio programmes - through the EEA shared radio slot (ENTC, EEA).

- Academic service is provided to tertiary institutions (University of Eswatini) – by providing access to Nature Reserve public facilities for studies on the biodiversity therein.
- Training of rural communities on issues of environment/ Nature Conservation - incorporation of indigenous knowledge systems in order to promote 'sustainable 'attitudes
- Provides and functions as a support service for both external (Rural Communities, NGO's, CBO's, etc) and internal stakeholders who are in other departments.
- Incorporates appropriate technology in environmental education – focuses on projects involving interested and affected stakeholders
- Provides general environmental education awareness – focuses on the social, economic, political, and biophysical dimensions of Swazi inhabitants and has reached out to about 200,000 citizens.

Relevant websites, web links and files

- http://environment.readyhosting.com/biodiversity/

Obstacles and scientific and technical needs related to the measure taken:

- The consistency in community outreach to conduct trainings aimed at the empowerment of citizens is sometimes limited by understaffing and limited skills on some technical issues touching the environment resulting in non-consistency in the content of knowledge shared with target audience.
- Budgetary constraints limit the allocation of resources such as transport and equipment required to conduct community outreach.
- The consistency in community outreach to conduct trainings that are meant to empowerment citizens is sometimes limited by the inadequate human and transport resources in key institutions. This is due to budgetary constraints that limit the allocation of resources needed to conduct community outreach. Lastly, the shortage of skill on some technical issues touching the environment is a limitation for knowledge sharing.
- A lot of outreach initiatives have been carried out country wide but no or outdated assessment have been done to quantify their impact.
- None standardised reporting leads to noncomprehensive compilation of reports by institutions making it difficult to assess data trends. Therefore, there is a need for the development of a standard reporting template.
- Government ministries don't have fully functional clearing house mechanisms due to ICT management issues.
- The is poor consistency in monitoring programmes and there is limited mapping done on initiatives undertaken for informed decision making in future.

Relevant websites, web links and files

- http://www.fao.org/3/ca3682en/ca3682en.pdf

1.2 Measure taken.

Mainstreaming biodiversity and ecosystem into curricula (schools and tertiary institutions)

Target 1: By 2022, more than 70% of Eswatini nationals will be cognizant of biodiversity and ecosystems, their value and the steps they can take to conserve and use these sustainably.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Since 1983, the national curriculum centre (NCC) has integrated biodiversity topics into the primary (Grade 1-7), secondary (Form 1-3) and high school (Form 4-5) curriculum on subjects such as Science, Agriculture, Social Studies, Practical Arts, Geography and Development studies.
- The Eswatini National Curriculum Framework for General Education of 2018, mainstreams from Grade 0 to Form 6.
- Currently, the country has 624 primary schools made up of both government and private schools which have an estimated enrolment of 237,451 pupils. Currently, there are 285 junior and senior secondary schools in the country with an enrolment of 73, 976 learners (MoET 2017).
    - A task team has been formed for education for sustainable development (ESD) which is meant to assist and guide with the formation of various matrices on biodiversity related topics which are important to be integration into the curriculum.
- Mainstreaming at tertiary level has seen more undergraduate programmes being reviewed and upgraded to include biodiversity-related courses. The University of Eswatini which is the largest in the country has mainstreamed courses of programmes found in the faculties of Agriculture, Science and Engineering, Food Science and Health Sciences. New undergraduate programmes developed include the BSc. in Geographic Information System and BSc. in Environmental Science. A new post graduate degree that has been introduced, the Master of Science Degree in Climate Change and Sustainable Development another is the MSc. in Ecology and Biodiversity Conservation which began in 2013.
- Institutional capacity towards biodiversity management has been facilitated through the partnership done between EEA and UNESWA in the form of a signed MoU. This resulted in the incorporation of Biosafety topics into the curricula of the tertiary institution. Furthermore, the agency assisted the "Royal Eswatini Police College Curriculum Design Unit" to finalize its Environmental Law Module to be taught to new police recruits and returning officers doing refresher courses.
- The other small universities such as the Southern African Nazarene University (SANU) and some colleagues have mainstreamed biodiversity topics to a lesser extent.
- EEA has conducted Biosafety Training for teachers as an effort to create national awareness on GMO issues, for Primary School Principals and teachers across the country. The aim of the workshop was to introduce the basic concepts of Modern Biotechnology and Biosafety and how they can be incorporated into the primary school education curriculum. A total number of 822 Principals and Teachers attended the training workshop.

Relevant websites, web links and files

- **http://www.gov.sz/index.php/departments-sp-799263136/primary-education**
- **https://www.uniswa.sz/academics/undergraduate_programmes**
- **http://sea.org.sz/pages.asp?pid=80**
- **http://www.gov.sz/images/Educationdocuments/Curriculum-Framework.pdf**
- **https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf**

Obstacles and scientific and technical needs related to the measure taken:

- Climate change topics are poorly been mainstreamed and there is a dire need for their inclusion. Also, secondary and high school mainstreaming requires a review, where topics must be informative for behavioural change and just teaching topics in a way that they do not instil change.

Other relevant information

Table 1: Biodiversity related topics mainstreamed in school curricula.

Grade	Subject	Topics
1	General Studies	1. Wildlife (plants and animals). 2. The importance of plants and animals in my environment (harmful plants).
2	Social Studies	1. Water pollution
	Science	1. Be careful with water (efficient use). 2. Be careful with fire (avoid veld fires). 3. Keep wildlife safe.
3	Social Studies	1. What people do in the environment (good and bad practices). 2. Ways people can protect the environment.
	Science	1. Exploring, saving and the importance of the environment. 2. I take care of water (avoid pollution).
4	Social Studies	1. Law enforcement (the importance) 2. Types of pollution (cause and effects) 3. Reducing pollution.
	Science	1. Plants live in different places (ecosystems). 2. Animals depend on one another (importance of healthy ecosystems).
5	Social Studies	1. Renewable and non-renewable resources in Eswatini (sustainable management). 2. Forests as resources (values of conservation). 3. Water as a resource (value of conservation). 4. What is conservation and conservation areas (conservation areas and the role of the Eswatini National Trust Commission (ENTC).
	Science	1. Air pollution 2. Causes of air pollution (anthropogenic and natural)
6	Social Studies	1. Natural disasters (types and disaster management e.g earthquakes). 2. Wildfire (causes, effects, prevention and mitigation). 3. Drought (causes, effects, prevention and mitigation). 4. Types of tourism and its importance (community, private and state owned). 5. Soil erosion (signs and effects) 6. Causes of soil erosion and prevention methods (overgrazing and deforestation).
	Science	1. Land pollution (what is it and causes). 2. Ways of preventing and reducing land pollution. 3. Technologies in crop production (conservation agriculture). 4. Genetically modified organisms (what are they and precautions)
7	Social Studies	1. Environmental laws (Biodiversity Conservation and Management Bill 2008, and the water pollution, waste, and ozone depleting substance regulations). 2. Convention on international trade on endangered species (CITES). 3. Conflict over natural resources (the consequences of non-sustainable utilization and solutions to that).
	Science	1. Air in the atmosphere (global warming, Carbon dioxide and Nitrate emissions)
Form 1	Geography	1. Soil erosion types and causes (anthropogenic and natural) and conservation. 2. Hydrological cycles and anthropogenic interference and rectifications. 3. The climate and causes of climate change (deforestation and industrialization).

		4. Population dynamics and the influence on natural resources degradation (pollution, deforestation, and settlement).
	Science	1. Environmental pollution and conservation. 2. Effects of water, land and air pollution.
	Agriculture	1. Soil erosion and conservation 2. Land use classes.
	Development Studies	1. Air pollution effects and prevention. 2. Water pollution effects and prevention. 3. Destruction of indigenous vegetation effects and prevention. 4. Soil erosion causes and solutions.
Form 2	Geography	1. River systems (how they are degraded). 2. Soil erosion (causes, impact and management). 3. Climate change (causes). 4. Exotics (their economic use and control when being invasive).
	Agriculture	1. Range management (systems of grazing).
Form 3	Agriculture	1. Agroforestry (importance). 2. Soil erosion (conservation methods and rehabilitation of degraded land. 3. Land use survey (systematic planning and mapping).
	Science	1. Water for future generations (plan and actions for sustainable conservation). 2. Waste management (methods to limit and prevent pollution).
	Development Studies	1. Exploitation and conservation of forests (causes, effects and solutions). 2. Soil degradation, pollution and desertification (causes and solutions).
Form 4 & 5	Biology	1. Biotechnology and genetic engineering (advantage and disadvantages) 2. Ethanol production for biofuel 3. Deforestation effect and carbon sink 4. Pollution effects and mitigation (water)
	Agriculture	1. Game farming and ranching (importance and ecological principles). 2. Range and pasture management (quality grass and effects of carrying capacity). 3. Crop and livestock management (advantages and disadvantages of genetic variation). 4. Sustainable agriculture (promote water conservation, need for biodiversity, avoid chemical pollution, recycle to avoid waste). 5. Conservation agriculture.
	Development Studies	1. Soil erosion causes and control. 2. Deforestation causes and control. 3. Fertilizers and pesticides in the environment. 4. Genetically Modified crops. 5. Timber certification (FSC) 6. Sustainable tourism (how forests can be protected and ecotourism). 7. Climate change and pollution (causes, impact and reducing emissions).

(Source: NCC and textbooks).

2.1 Measure taken.

Identification and evaluation of important ecosystem services.

Target 2: By 2022, biodiversity values have been integrated into all national, regional, municipal and rural development and poverty reduction strategies and planning processes and are being incorporated into accounting and reporting systems.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The country's state of the environment report (SOER) of 2013 highlights four important ecosystems namely the Grassland which has a national cover of 46%, the Savanna (48%), the Forest (5%) and the Aquatic (1%). The savanna-woodland mosaic is the dominant ecosystem, which covers the central and lower parts of the country. This is followed by the montane grasslands which predominantly occur in the Highveld and the forest and aquatic occur as minor zonal systems.
- The wetlands of Eswatini are important habitats for various species of mammals and birds. Typical mammals found in the country's wetlands include water mongoose (*Atilux paludinosus*) along or near streams and rivers, cape clawless otter (*Aonyx capensis*) in freshwaters and the maquassi musk screw (*Crocidula maquassiensis*).

- The Eswatini national annual vulnerability assessment and analysis report assesses rangelands conditions (species, erosion, visible features, browsing potential) and water levels in aquatic bodies. The project Lower Usuthu Smallholder Irrigation (LUSIP-GEF) Sustainable Land Management Project provided resources for the rangeland and livestock baseline data collection to assist in rehabilitation of rangelands.
- The country's Forest Resource Assessment report of 2015 provides an updated area under forests and the area of forests that is degraded. The forestry and sugarcane growing plantations do conduct assessments on grasslands used as conservation areas and on aquatic bodies to determine pollution and ecosystem degradations.
- Climate Change Vulnerability Assessment for the Water Sector and Infrastructure in Eswatini, generated the Vulnerability Assessment Report 2014.

Relevant websites, web links and files

- **http://www.fao.org/3/a-az345e.pdf**
- https://iwra.org/member/congress/resource/PAP00-5614.pdf
- https://www.separc.co.sz/reports/
- **https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf**

Other relevant information

- Work toward finalisation of the draft Bioeconomy Strategy and Implementation Plan is done by the Ministry of Information Communication and Technology. Strategy proposes the establishment of a National Research Council that will be tasked with managing funds allocations across the bioeconomy for both research and commercialization. This fund will support both public and private sector research needs.

Obstacles and scientific and technical needs related to the measure taken:

- There are no comprehensive national assessments for any of the key biodiversity targets
- There is a need for a natural capital accounting for the key ecosystem and biodiversity resources.
- The country last conducted grass biome study in 1994 conducted by Sweet and Khumalo, funded by FAO, these findings are outdated now since a national survey is expected to be conducted every five years.
- The last extensive fish survey was conducted in 2003-2004, and no recent survey has been conducted due to limited resources (funding and fish survey equipment).

- Some of the research institutions focus on a limited scope of economic assessments and don't do much on biodiversity related economic accounting e.g. ESEPARC.

2.2 Measure taken.

Mainstreaming of biodiversity and ecosystems values in national planning instruments and processes.

Target 2: By 2022, biodiversity values have been integrated into all national, regional, municipal and rural development and poverty reduction strategies and planning processes and are being incorporated into accounting and reporting systems.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- **The National Development Strategy (NDS) Vision 2022:** In Chapter 3.7 of the key Macro Strategic Areas the Government of Eswatini recognizes environmental management as a necessary condition for sustainable development. This entails the maintenance of an ecological balance; accommodating environmental considerations in policies, strategies and programmes of both the public and private sectors; accommodate environmental compliance procedures; and ensuring that sector strategies for achieving the country's vision are environmentally friendly. The broad strategies of environmental objectives fulfilment are;
  - **Integration:** Fully integrate environmental management and development planning in to ministries and initiate a collaborative coherent programme approach with all sectoral ministries and departments, each contributing in their area of expertise.
  - **Monitoring:** Establish a national environmental mechanism for ensuring that the environmental priorities of national planning are observed and sought after. Coordinate monitor and control environmental protection measures.
  - **Legislation:** Strengthen or develop a comprehensive system of environmental laws and regulations and reinforce the enforcement capability of the Eswatini Environment Authority.
  - **Capacity Building:** Encourage popular participation and training, including embracing sectoral human resource development, education and training, public information and public involvement.
  - **Gender:** Ensure a gender dimension in environmental management. Involve women actively in environmental decision-making at all levels.
  - **Enforcement:** Enforce all environmental laws. Ensure that enacted environmental laws and regulations are implemented.
  - **Conservation:** Curb and prevent the erosion of the soil, promote conservation and management of water and land resources, develop measures to conserve endangered animal and plant species, establish and promote the idea of botanic gardens.
  - **Implementation:** Implement the country's Environment Action Plan, implement the national biodiversity strategy and action plan, initiate economic incentives to promote environmental management.
  - **Finance:** Source financial resources needed for the introduction of the necessary institutional changes required for sustainable development, Establish an Environmental Fund.

- Poverty Reduction Strategy and Action Plan (PRSAP); The Chapter **5.2.2** recognizes environmental management as pivotal to a sustainable increase in agricultural productivity. The Chapter **9.2.1**. under the heading 'Environment and Poverty' recognizes that the underprivileged depend on the environment and natural resources for their survival, therefore any meaningful poverty reduction strategy will have to address issues related to the environment. The strategy further acknowledges that the three critical environmental problems in country are soil erosion, deforestation and forest degradation (including both actual loss of trees and the changing composition and structure); and water and air pollution.

- Strategy for Sustainable Development and Inclusive Growth (SSDIG) which is the review of the National Development Strategy (NDS) 1997 – 2022, which was commissioned in 2013. The Government review took stock of the emerging challenges and opportunities that were not foreseen during NDS formulation in 1997. The revised strategy identified four thematic areas as critical for the attainment of the Vision; namely:
  - **Good governance**
  - **Vibrant and diverse economy**
  - **Environmental sustainability**
  - **Highest human capital and social development.**

Obstacles and scientific and technical needs related to the measure taken:

- Limited implementation and monitoring of developed national strategies.
- No scientific base used to inform economic prioritisation during budget allocations.
- Need to capacitate masses to effectively contribute to national policy development

Relevant websites, web links and files

- https://sarpn.org/documents/d0001791/Draft_PRSAP_Vol1_March2005.pdf
- http://www.snat.org.sz/New%20Page/The-National-Development-Strategy.pdf
- https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

3.1 Measure taken.

Undertake an assessment study on positive, negative, potential incentives/awards and their socio-economic repercussions.

Target 3: By 2020, positive incentives that benefit biodiversity are encouraged, while harmful incentives, including subsidies, are eliminated or reformed.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- An assessment done by the forestry industry indicates that generally 29% of the forest fires are caused by honey hunters from communities bordering the plantations. To curb the arson incidents caused by the community members that try to harvest honey, the forest industry offers incentives for the community members to report located bee hives to forest companies which then commission trained honey harvesters on behalf of the members of the public and in addition an amount of E30.00 per bee hive is rewarded to the person that did not attempt to harvest honey.

- The MoA is implementing a farm input subsidy programme. This is meant to stimulate sustainable food production. Furthermore, the National Dipping Programme allows farmers to dip their cattle at cost free

and has successfully sustained livestock production through reduction in diseases. The sending of livestock at the dipping tanks has had commendable results in terms of functional animal disease intelligence and control which has led to the overall disease incidence being stable.

- Following the resolution by the House of Assembly directed to the Ministry of Tourism and Environmental Affairs to reconsider the plastic levy proposed by the Draft Plastic Control Regulations, EEA commissioned a Plastic Bags Survey in the year 2016/17. The purpose of the survey was to provide information on the quantities of plastics bags circulating in the country and the cost of production versus their impact to the environment. The information was meant to assist in guiding the promulgation of the proposed Plastic Control Regulations. This initiated discussions with Eswatini Revenue Authority (ERA) on the Collection of a Plastic Levy under the proposed Plastic Control Regulations.

Relevant websites, web links and files

- https://www.idosi.org/aejaes/jaes13(9)13/5.pdf
- https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- The legislation "Control of Plastic Regulations, 2015" is still pending.
- Financial tax has not been incorporated to companies that cause environmental degradation, likewise a tax reduction incentive is not given to compliant companies now, but it is only fines that are imposed to law breakers under limited inspection for enforcement.
- There is no comprehensive tax incentive assessment done to give incentives and levy's regarding the use and management of biodiversity. Hence there is need for a comprehensive tax incentive assessment.

3.2 Measure taken.

Introduce environmental taxes and levies to reform harmful subsidies and payments for ecosystem services.

Target 3: By 2020, positive incentives that benefit biodiversity are encouraged, while harmful incentives, including subsidies, are eliminated or reformed.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The department of water affairs (DWA) in the Ministry of Natural Resource and Energy (MoNRE) officially gazetted and launched four (4) River Basin Institutions that will manage all the affairs of the river basins as enshrined in the Water Act, 2003. They shall enforce regulations in respect of water allocation, water pricing, water quality control, water sport control areas, groundwater drilling (2013/14).
  - **Water Permit:** is required to use water for industrial and agricultural purposes as well as for bulk water supply; to divert or store water, and to alter a water course, renewed every 5 years.
  - **Effluent Control Permit:** is required by anyone using water for industrial purposes and who wants to discharge effluent into a water course.

- **Temporary Water Permit:** A temporary permit may be issued for the diversion, storage or use of water, which is valid for 3 years only and is non-renewable.

- A permit is required from the Kings office to;
  - Hunt, kill or capture any game as specified on the permit, and to import or export trophies or raw game products under the Game Act, 1991, as amended, section 16(1) and section 19(1).
  - Sell or export plumage of wild birds and to capture, convey, sell, purchase or barter wild
  - Birds under the Wild Birds Protection Act, 1914, sections 4, 6-7.

- The ENTC issues permits for the harvesting of natural resource such as grasses and poles within Protected Areas.

- The use of natural resources such as plaster and river sand and fuel wood and building timber requires permit payment and authorisation by community authorities (Chiefs).

Relevant websites, web links and files

- **http://www.gov.sz/index.php/departments-sp-623334762/department-of-water-affairs-dwa**
- **https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf**

Obstacles and scientific and technical needs related to the measure taken:

- There are indicators of natural resource over exploitation such as natural resources degradation in communities due to weak enforcement (regulation) by natural resource committees, police and agencies who are custodians of environmental laws.
- There is no legal instrument to introduce levies and taxies as incentives on sustainable management of the environment.

4.1 Measure taken.

Integrate biodiversity, proper land use and EA into sustainable development plans of local authorities, regions, Chiefdoms and Tinkhundla and in to new and existing businesses.

Target 4: By 2022, the Government of Eswatini, municipalities, businesses, local communities and stakeholders at all levels have developed and are implementing plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Tinkhundla Administration and Development Bill of 2015 acknowledges the need for Chiefdom Development Planning (CDP) framework. The CDP is a participatory land-use planning process involving the participation of households in a chiefdom and led by a multi-disciplinary team comprising a team of Land Use Planner, Irrigation Engineer, Soil Specialist and Social Geographer and Gender specialists. The team compiles an inventory of existing land use, land holdings and related issues; and identification of irrigation schemes, rainfed farming and livestock grazing areas, human settlements, rehabilitation sites and

conservation areas. The CDP uses traditional and modern development approaches to equip rural households with the capacity to plan for community development.

- Town Planning Schemes (TPS) are produced by municipalities which provide a Spatial Planning Framework that will ensure long-term growth and economic success of the town urban and agricultural areas, under the auspices of the Town Planning Act, 1961. The TPS aims to holistically present appropriate infrastructure development and rational land utilization plans taking into consideration all aspects of the physical landscape, environmental, ecological, economic and fundamental planning principles and issues.

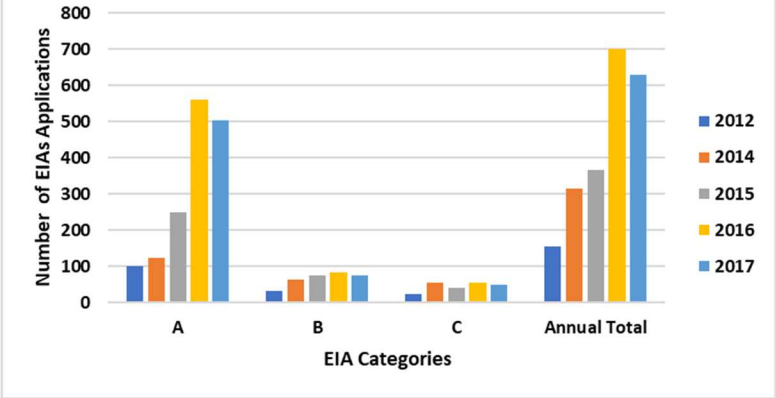
- Municipalities conduct environmental assessments under the public health and sanitation.
  - **Environmental Health Inspections**: business outlets and offices are inspected for different purposes including issuance of health clearance certificates. Furthermore, inspections of water sources and sanitary.
  - Facilitate the conduct of EA for any development.

- The MoA (Department of Land Use Planning and Development) develops land use plans and maps for government farms where it carries out;
  - **Soil surveys**: to generate soil maps and accompanying reports that characterize the various soil types occurring in the survey area.
  - **Generate land capability maps**: to show different categories of land capability classes from prime arable land through marginal to non-arable land.
  - **Develop land use plans**: to cover resettlement plans, crops and forestry land suitability plans.
- Proponents that are in Category 2 and 3 are required to make an undertaking to submit an environmental assessment EA/ESIA report and a comprehensive mitigation plan (CMP) to the Authority within six (6) months after notification to do so. Furthermore, on voluntary bases or adoption the private and public institutions/companies implement environmental management systems.

Other relevant information

- The land use plans developed also determine the irrigation potentials of communal, state and private farms. Furthermore, land use analyses have been conducted at various sites proposed for human settlement development through partnerships with the Human Settlement Authority from the Ministry of Housing and Urban Development.

Figure 1: Trends Over Years on EIA Applications



(Data source: EEA annual reports, 2012-17)

Obstacles and scientific and technical needs related to the measure taken:

- Theoretically, the planning and execution exercise to have a complete CDP takes about 196 days (SWADE, 2011). However, because the CDP process does not necessarily proceed immediately from one stage to the next, practically the timeframe for the planning has been taking a maximum of about one year.
- There is a limitation on financial and staff capacity of the EEA to carryout timely inspections.
- There are currently budgetary constraints to mainstream CDPs escalation countrywide in the Ministry of Tinkhundla, Development and Administration.
- Lack of land policy
- Lack of implementation of the Open Space System in local authorities.

4.2 Measure taken.

Intensify, promote sustainable use of natural resources in communities and environmental management strategies within municipalities.

Target 4: By 2022, the Government of Eswatini, municipalities, businesses, local communities and stakeholders at all levels have developed and are implementing plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- A baseline study on water schemes and climate smart agriculture (CSA) program was conducted in the country and the study is used as an official document to assist in the strengthening of the implementation of the up scaling of CSA and other related projects.
- The input subsidy has a requirement that farmers must produce soil fertility test results for them to get inputs (fertiliser and lime), this has seen the good practice of soil sampling for soil fertility testing increase from lows of 3758 in 2013/14 to 23,872 in 2017/18.
- Government and private farms promote the natural development of *Panicum Maximum* (Guinea grass) in the lowveld and in some farms *Eragrostis curvula* (weeping love grass) planted for hay making.
- Fuel wood consumption has shown to be constant and not dropping over the years and the government piloted and promoted the use of energy conserving technologies in the form of wood saving stoves. The use of efficient stoves intends to save the forests rate of deforestation and to alleviate the risks of smoke induced respiratory diseases as well as mitigate climate change. Wood-saving stoves construction was conducted in more than 22 schools in the country. This was through a collaboration between the MoNRE with the Ministry of Education and Training for the use of efficient woodstoves in the schools feeding schemes.

- The ENTC held meetings with Manzini City Council officials where they have assisted to short list their heritage sites for declaration and gazetting as national monuments for the city.

- Urban wetlands management programme sensitization/ awareness and commemoration on going from 2017.

Relevant websites, web links and files

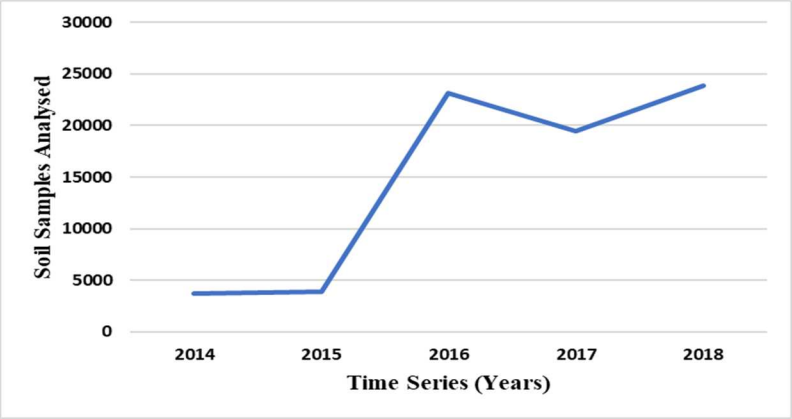
http://www.gov.sz/swaziland_se4all%20rapid%20assessment%20and%20gap%20analysis_final_06%2014-1.pdf

http://www.gov.sz/swaziland_se4all%20rapid%20assessment%20and%20gap%20analysis_final_06%2014-1.pdf

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

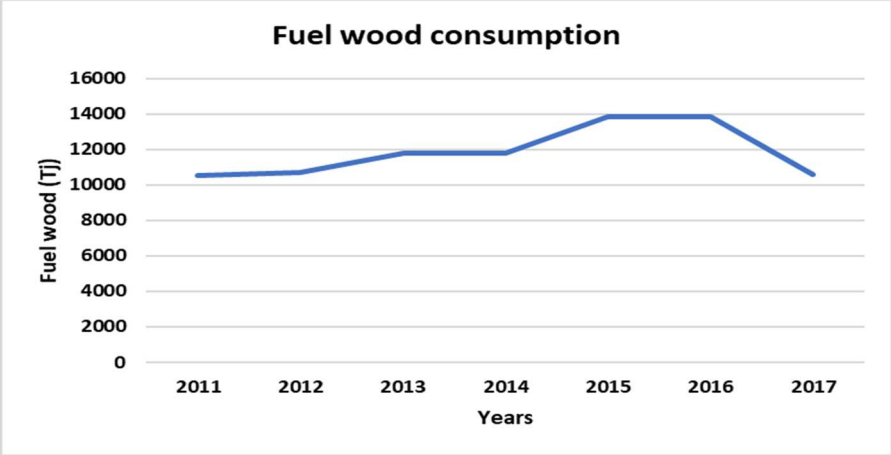
Other relevant information

Figure 2: Farmers Soil Samples Analyzed Over Years



(Data source: MoA annual reports, 2014-18)

Figure 3: Fuel Wood Consumption Over Seven Years



(Data source: MoNRE Questionnaire, 2019)

Obstacles and scientific and technical needs related to the measure taken:

- Sustainable technologies of efficient energy use face the challenges of low adoption due to socio-economic challenges.
- Retailers that were distributing efficient stoves were having a challenge on importing the Masheshisa stove into the country; hence there are not enough stoves available. Additionally, stove prices are too high especially the most accepted stove basintuthu (for cooking and baking), hence the stove technology uptake has been too slow.
- Overstocking is still a problem for sustainable range land management in Swazi Nation Land (SNL).

4.3 Measure taken.

Promote environmental standards in businesses and municipalities.

Target 4: By 2022, the Government of Eswatini, municipalities, businesses, local communities and stakeholders at all levels have developed and are implementing plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Nationally, the Eswatini Standard Authority (ESWASA) which is a government parastatal provides certification services that enables clients to demonstrate that their products, processes, systems or services are conforming to national and international standards. They assist organizations in developing practical management systems certification, training and auditing. The number of local companies taking up voluntary certification trainings is increasing.

- The national compliance on requirements of formal markets for livestock the country has formulated standards to guide potential producers on what is expected for them to be allowed to supply their livestock. As part of an internal validation mechanism Veterinary Systems Audits are conducted annually with the aim to improve the effectiveness and efficiencies in Animal Health Service Delivery Systems. This helps to identify shortcomings that relate to inadequate inspections at the dip tanks by supervisory personnel as well as supervision of sub regional offices' functions, production establishments (feedlots, quarantines, abattoirs, food of animal origin establishments, etc.) as well as cordon fences among others.

- The country has improved opportunities of penetrating regional and international markets for vegetables through the National Marketing Board (NAMBoard) which has developed and maintains its Hazard Analysis and Critical Control Point (HACCP) and Global GAP compliance framework. Compliance frameworks for these systems are in place for both systems and all certifications are valid.
  - **Global Gap:** The external audit was done by SGS South Africa (Pty) Ltd and had positive results proving that NAMBoard is still compliant to all Global GAP requirements.
  - **SANS 10330:2007 HACCP System**: The pack house is currently certified to the SANS 10330:2007 HACCP standard and an external audit was done by the South African Bureau of Standards which confirmed NAMBoard to be still compliant to all HACCP requirements.

- The two largest municipalities of the country (Manzini and Mbabane) are certified and in the process for more certifications on Quality Management System (QMS), in an endeavour to optimize quality of service delivered to the citizens. Some progress is seen in municipalities on the implementation of Safety, Health, Environment, Risk and Quality (SHERQ) management system programme. Subsequent to the certification of the Manzini municipality on ISO9000-2008 QMS standard, the organization commenced with the preparations to establish standard ISO 9001:2015.

- The three main Forestry plantations in the country with a total estimated area of 104,000 ha are FSC certified.

- The Swaziland Fair Trade (SWIFT) is composed of companies that produce high quality, high design handcraft in the country. SWIFT ensures each company aligns itself and complies with the Principles of Fair Trade.

- The Construction Industry Associations Regulatory Policy 2016 of the Construction Industry Council (CIC) states that punitive action is taken against "Malpractices by Industry Associations" such as violation of the principles, procedures, laws and regulations of the country.

- The Building Act, 1968, guides local authorities on how to sustainable manage construction developments.

Relevant websites, web links and files

http://www.amis.co.sz/taxonomy/term/150

https://www.swazifairtrade.org/

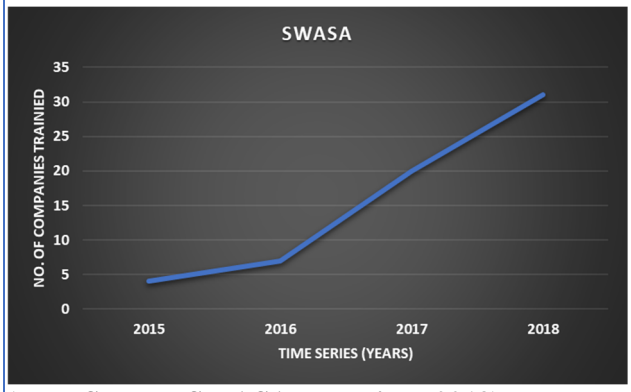
https://www.mbabane.org.sz/wp-content/uploads/2019/04/The-Building-Act1968-1.pdf

https://www.cic.co.sz/legal/policies/ConstructionIndustryAssociationsRegulatoryPolicy.pdf

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Other relevant information

Figure 4: Companies Trained on Environmental Management Systems and Standards



(Data Source: SWASA Interview, 2019)

Obstacles and scientific and technical needs related to the measure taken

- The footprint of Environmental Management Systems (EMS) is more visible in urban setting and little is done in communities where about 70% of the population reside.
- The land tenure system limits stringent efforts toward implementing or integrating EMS within communities.
- Only the biggest two towns (Manzini and Mbabane) out of 13 are in some form of certification and this indicates a huge gap in terms of sustainable biodiversity management within most towns and requires an integrated approach for them to systematically manage biodiversity issues.

5.1 Measure taken.

Strengthen baseline data on the state of the country's natural habitats and ecosystems, develop outlook and actions safeguarding ecosystems

Target 5: By 2022, the rate of loss, degradation and fragmentation of all Eswatini's natural habitats is at least halved and where feasible brought close to zero.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Surveyor General's Department provides surveying and mapping services to the public, private and the general public sectors and the information provided is the form of topographic maps, aerial photography, orthophoto mapping and numerical data largely for land ownership and transfers. The department has also developed a National Development Data Centre (NDDC) that houses a Geospatial Information System (GIS) designed to enable effective planning and implementation of poverty-related programmes using evidence-based information as basis for decision making.

- In the Manzini region, a water and feed/grazing availability survey was done. It was found that in most parts of the region, water as not a major challenge due to perennial stream water flows at the time of the assessment. However, cattle feed was limited due to degraded grazing lands with little or no vegetation cover in 2016. Furthermore, range land surveys for the purpose of determining range condition, carrying capacity and calculating bill of quantities for fencing off the veld were done in various locations in three regions (Manzini, Shiselweni and Hhohho).

- Private farms such as those of forest companies, ranches and some sugarcane farms do carryout grasslands assessments as well as on other open areas to determine their conservation values. Furthermore, soil erosion assessments are done, and rehabilitation plans implemented and audited.

- The combined area under sugarcane and forest production was 616,421 ha in 2011 and had cumulatively increased by 4.55% in 2015. The 2012 state of the environment highlights land use changes (LUC) as the driver of indigenous forest degradation due to rural settlement, tourism, industrial forestry, citrus forest and sugarcane plantations. In addition to LUC, the increased demand for forest and wood products has led to increased extraction of native forest products which puts severe pressure on the forest resources. The demand leads to an uncontrolled extraction of timber and non-timber forest products, including fruits,

edible plants and vegetables, fuelwood, wood for utensils and craft, medicinal plants, materials for traditional attire, etc.

- The aquatic biome faces pressure of ever declining water quality and levels which has been caused by climate change effects that may heighten shortages (and surpluses) and increasing demand for water for economic development. The main pressures on water quantity are the increasing demand for water to supply the industrial, agricultural and domestic sectors along with competition for the finite water supply. Irrigation is the major user of water in the country and accounts for 96.6% of available supply. Irrigation is extensively used for growing sugarcane, citrus fruits, and vegetables.

- Scientific study by Dlamini W. 2017 shows that deforestation of natural woodlands and bushlands was mostly concentrated on the Eastern half of the country. General loss from 1990 to 2015 across the country was estimated to be 42,620 ha with an average deforestation rate of 1704 ha yr^{-1}.

- The Land Degradation Neutrality Assessment identified five (5) Land Degradation Hotspots for Eswatini, which have been listed by eco-geographical regions of the country
  - **Highveld (A) area:** Drivers are overgrazing, over exploitation of vegetation for domestic use (leading to water run-off in steep slopes); Improper soil management; Improper management of annual, perennial and scrub and tree crops; Disturbance of water cycle.
  - **Lower Middleveld (B) area:** Drivers are deforestation (mainly due to vegetation clearing for human settlement and firewood); overgrazing; over exploitation of vegetation for domestic use; Improper soil management.
  - **Upper Middleveld (C) area:** Drivers are deforestation (mainly due to high rate of conversion of forest to small scale sugar cane plantations); improper soil management; improper management of annual, perennial and scrub and tree crops; disturbance of water cycle; overgrazing.
  - **Western Lowveld (D) area:** Drivers are deforestation (mainly due to high rate of conversion of forest to small scale sugar cane plantations and other commercial crops); over exploitation of vegetation for domestic use; improper soil management; improper management of annual, perennial and scrub and tree crops; disturbance of water cycle; overgrazing, any other (run-off).
  - **Lubombo (E) area:** Drivers are improper soil management; improper management of annual, perennial and scrub and tree crops; disturbance of water cycle; deforestation, overgrazing, any other (Invasion by Alien Plant Species, mainly *Chromolaena ordorata*).

Relevant websites, web links and files

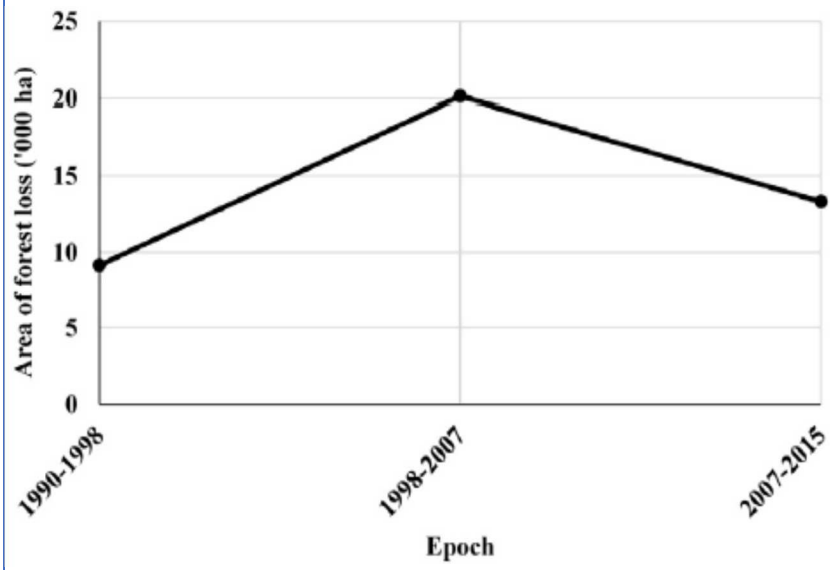
http://www.gov.sz/index.php/departments-sp-623334762/surveyor-general

https://www.sciencedirect.com/science/article/pii/S2352938516300908

https://link.springer.com/article/10.1007/s40808-016-0231-6

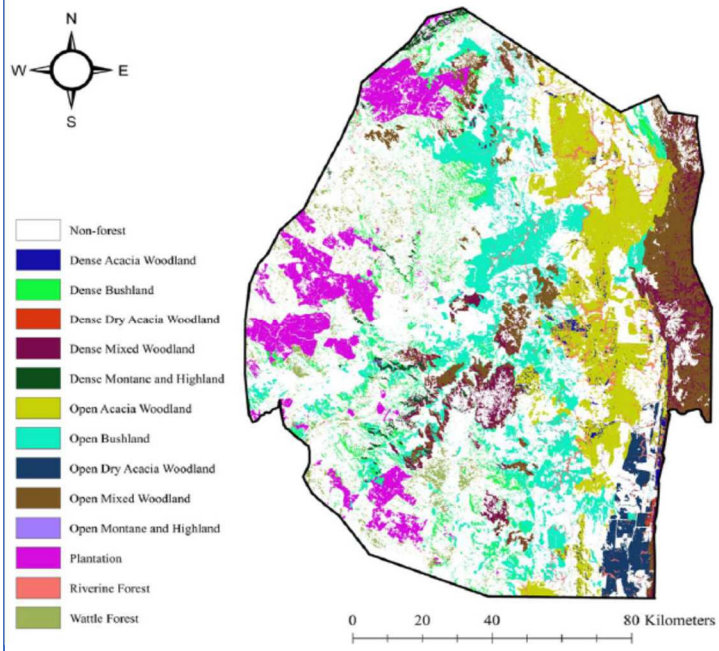
https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Figure 5: Forest loss in Eswatini between 1990 and 2015



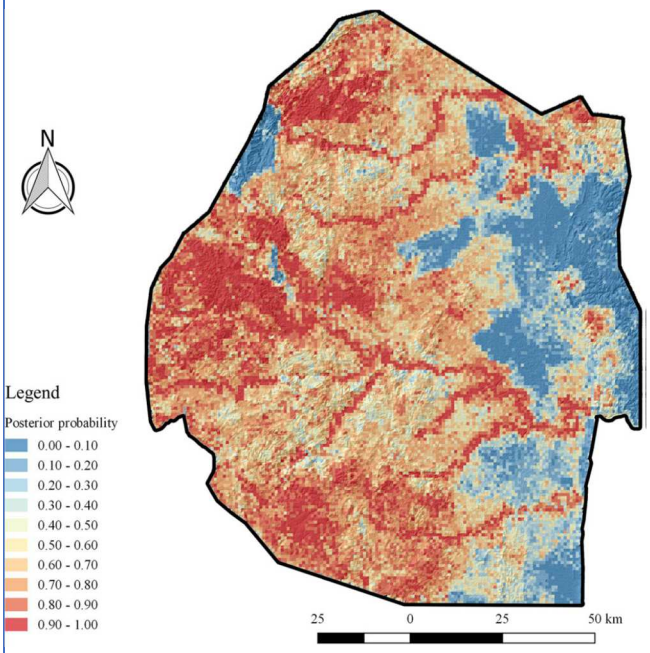
(Source: Dlamini W., 2017)

Figure 6: Forest types in Eswatini in 1999



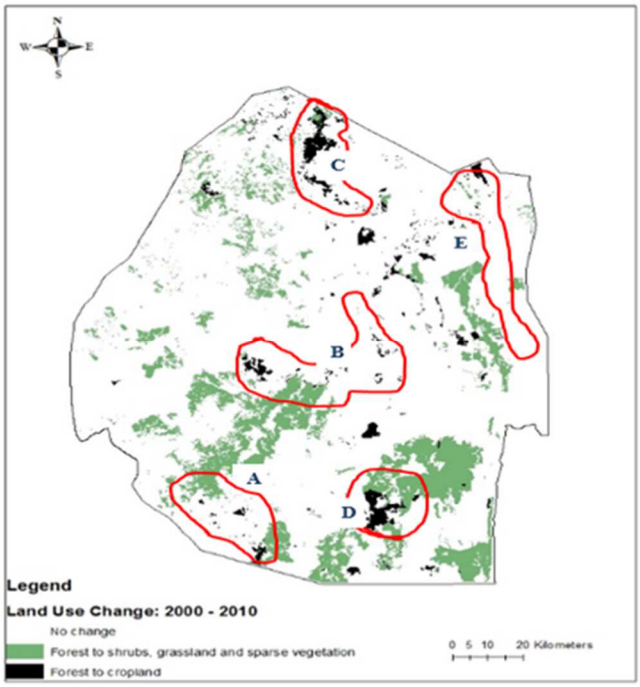
(Source: Dlamini W., 2017)

Figure 7: Mean deforestation risk map



(Source: Dlamini W., 2016)

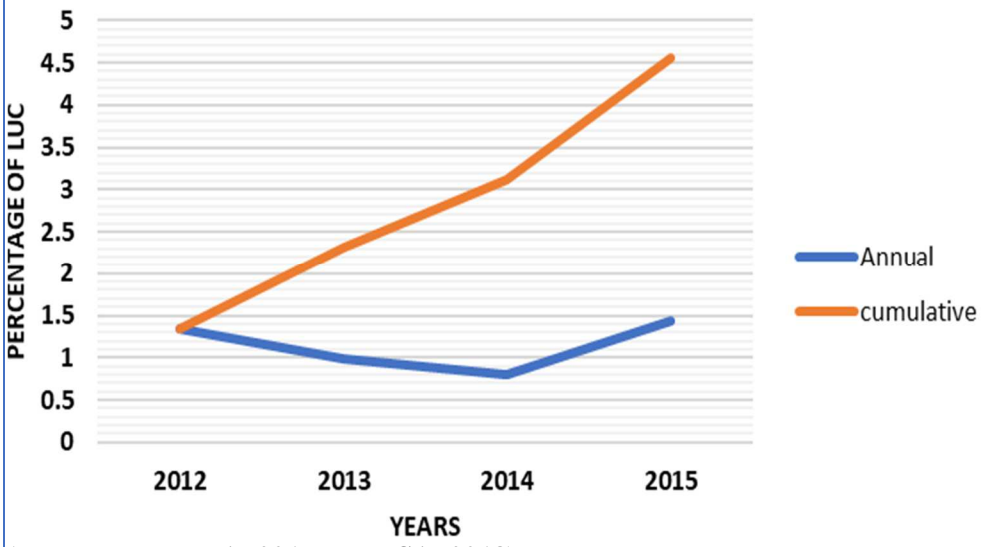
Figure 8: Five Land Degradation Hotspots for Eswatini



(Source: Land Degradation Neutrality Report, 2017)

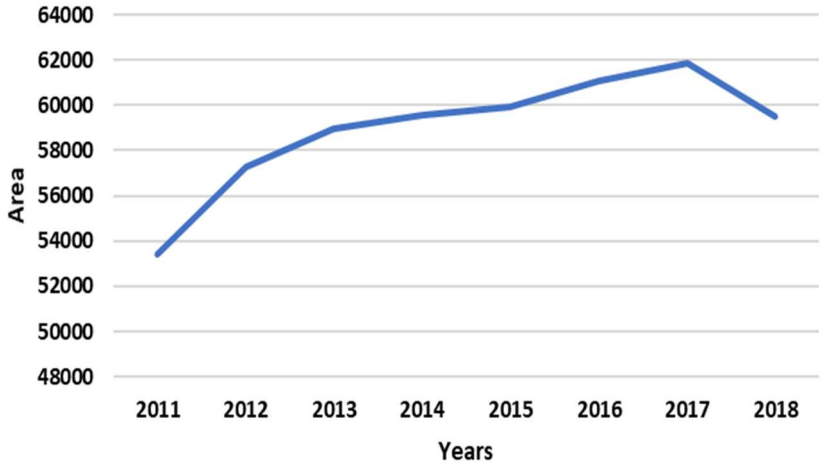
Other relevant information

Figure 9: National Context of Forestry and Sugarcane Expansions



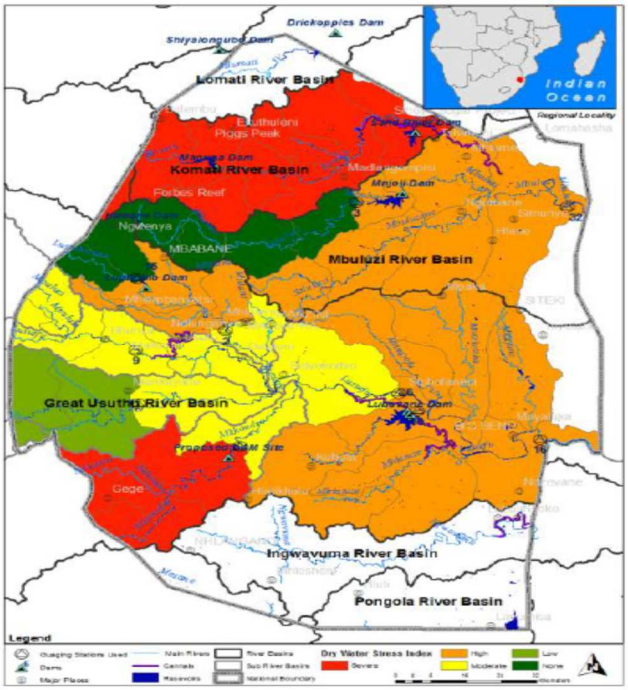
(Data source: FRA, 2015 and ESA, 2018)

Figure 10: Area Under Sugarcane Production



(Data source: ESA questionnaire, 2018)

Figure 11: River Basins Stress Index



(Source: TNC, 2016)

Obstacles and scientific and technical needs related to the measure taken:

- Weak enforcement of environmental legislation
- Limited institutional and technical capacity
- Ecosystem assessments done by individual organisations their findings are not consolidated to account for national state due to weak coordination between all involved stakeholders (Public, private and NGOs).

5.2 Measure taken.

Develop monitoring and evaluation plans for habitats and promote ecosystem-based adaptation strategies

Target 5: By 2022, the rate of loss, degradation and fragmentation of all Eswatini's natural habitats is at least halved and where feasible brought close to zero.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The State of Environment (SOE) report is a legal obligation for the Eswatini Environment Authority to produce biannually. It intends to provide a strategic guidance on the actions that need to be carried out to improve the overall biodiversity management of the country's environment.

- The demand for aquatic water resource by agricultural, industrialization and urbanization puts pressure on the health and allowable water levels, so water gauges have been installed in aquatic bodies of the country to monitor levels.

- The MODIS data using a geographic information system (GIS) is used to monitor incidences of veld and forest fires in the country and is useful for planning purposes. The implementation of the fire management strategy has been effective in minimizing occurrences of fire incidences in the country. Among the good initiatives done are trainings of community fire-brigades where the trainees were given firefighting gears. Also, fire belts are built in boundaries and borderlines of forest plantation companies and some rangeland farms also do them. In the country's regional fire hot spots, fire Prevention Association were established to work in collaboration with fire protection service providers. Forest plantations have adopted cold burning for their terraces and fire belt when the Fire Danger Index (FDI) is below danger zone in the morning hours or cool evening hours.

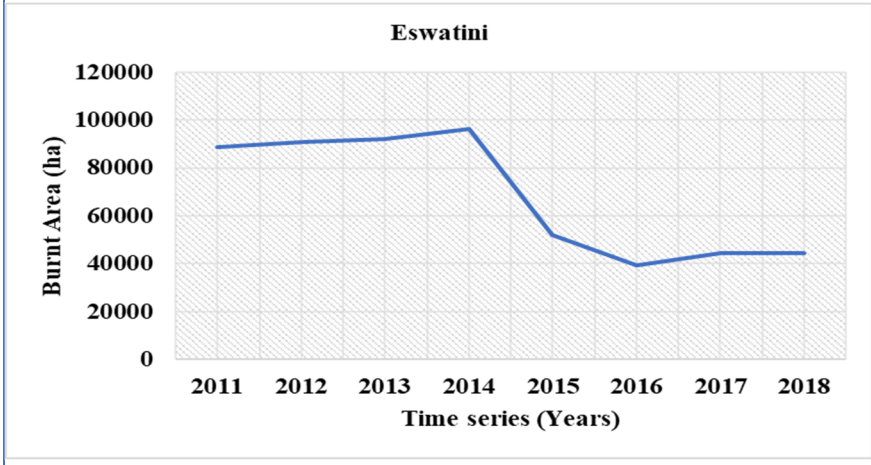
- Nationally, cattle sale points at dip tank level have to some extent increased the off take, hence grazing pressure on communal rangelands has been reduced. Farmers were responsive to this initiative since they sold cattle and goats to avoid death threats due to prevailing drought conditions in some areas of the country.

- The threat of river line buffer vegetation from illegal clearing by dagga growers has been curbed by Rangers deployment within forest plantation boundaries to monitor the illegal activities that pose a threat to commercial forest production due to burning of pieces of land which pose fire risks to standing timber. River basin authorities are also tasked with carrying out inspections of river courses and to conduct educational programs.

Relevant websites, web links and files

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

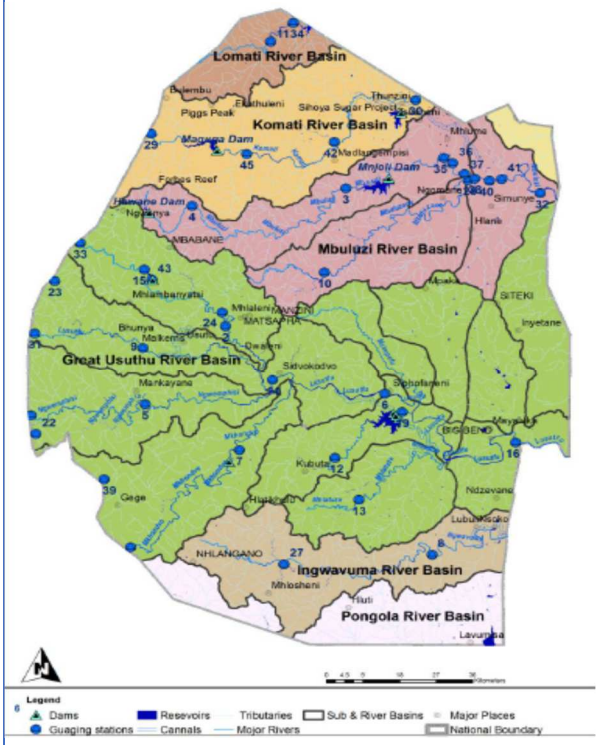
Figure 12: Country River Basins Stress Levels



(Data source: ENTC MODIS, 2018)

Other relevant information

Figure 13: National Hydrology and River Gauging Stations



(Source: TNC, 2016)

5.3 Measure taken.

Promote alternative eco-friendly livelihoods, restore, rehabilitate natural habitats and enforce legislation

Target 5: By 2022, the rate of loss, degradation and fragmentation of all Eswatini's natural habitats is at least halved and where feasible brought close to zero.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Ministry of Agriculture has constructed and rehabilitated small earth dams around the country to promote farming schemes where some have drip irrigation systems installed to promote crop production.
- Bee keeping, and honey production is being promoted as an alternative to limit deforestation in the LUSIP-GEF project area and in other regions. In 2012, the total number of beekeepers in the country was reported at 1,107 with a total of 3,860 hives. At least 500 of these beekeepers were smallholders.
- Eswatini Water Development Enterprise (ESWADE) conducts Land and Water Inventories to determine the state of the land and water in the project area. On another note, the National Environment Fund under

EEA has been instrumental in some community rehabilitations. Multiple stakeholders are involved in rehabilitation of dongas, desilting and improving runoff water infiltration across the country and initiatives conducted include;

- **Dredging Head Ponds:** done to increase dam water holding capacities that are reduced by siltation.
- **Terrace channel:** are constructed to slow runoff water and promote infiltration also water diversion channels are constructed to minimize erosion.
- **Donga rehabilitation:** trees are planted in degraded areas and gabions are constructed by stakeholders that involve NGOs, government departments and parastatals.
- **Fencing off**: is a protection form of degraded ecosystems done to rehabilitate them for their improved recovery which will increase the provisions of ecosystem services to communities.

- The National Environmental Fund initiatives coordinated by the EEA which promote sustainable livelihoods.

- Animal Disease Act, 1965; enforcement has yielded positive outcomes where above 95% compliance by farmers to dip their cattle has been recorded to avoid prosecutions. Mines and Minerals Act; Act No. 4 of 2011 is being enforced to some limited extent. Water Act, 2013; water allocation, water pricing, water quality control enforcement and fines have been done to those found breaking the law. The Litter Regulations of 2011 enforced where fines and infringement notices are given. The flora protection act of 2001 a lot more enforcement must be done. The Environment Management Act of 2002 has been enforced to but the is limited compliance due to nonvisible of enforcers relying mostly on whistle blowers.

- ENTC has established formal partnerships with key stakeholders namely; UNESWA, EEA and Eswatini Tourism Authority through Memorandums of Understanding. These partnerships will facilitate for collaborative engagement and help avoid duplication of efforts.

- The Eswatini Sugar Act, 1967 has regulations that discourage the expansion without undergoing the normal quota application requirements and remedial action to discourage such are penalties and excess produce coming outside of the quota is not accepted by the sugar mills for farmers found to have bridged the regulations. The sugar industry in Eswatini has adopted its best management practises which has environmental management guidelines.

- The sugarcane and forest sectors do enforce Environmental Management Systems (EMS) to their contractors, where non-complying are fined and also they promote fair trade practices to out growers where among many environmental management laws they also ensure that there is compliance with the Natural Resource Management Act on leaving the buffer zones at 33m along aquatic bodies.

- Some industrial sectors such as the energy (Eswatini Electricity Company) do adhere to EMS and enforce such to its contractors as well.

Relevant websites, web links and files

http://www.swade.co.sz/projects/gef/index.php

http://sea.org.sz/contents.asp?tid=13

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- The absence of the small-scale mining legislation such as river and plaster sand is a cause for concern leading to the poor or inadequate enforcement of river and plaster sand mining procedures.
- Measures taken are at small scale, there is need for national replication. There is lack of staff to monitor and enforce the law on small-scale miners; sand, plaster and gravel mining operations.

6.1 Measure taken.

Develop and implement integrated watershed management programmes for all major river basins

Target 6: By 2022 all of Eswatini's aquatic resources are sustainably managed.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The National Water Authority (NWA) is the overarching authority for the five river basin authorities established in the country through an official gazette and four of these were launched in the financial year 2013/14 as enshrined in the Water Act, 2003. Two water use districts have been established to support key agricultural activities such as the Lower Usuthu Smallholder Irrigation Projects (LUSIP) and the Malkerns Irrigation District in conformity with the Water Act, 2003.

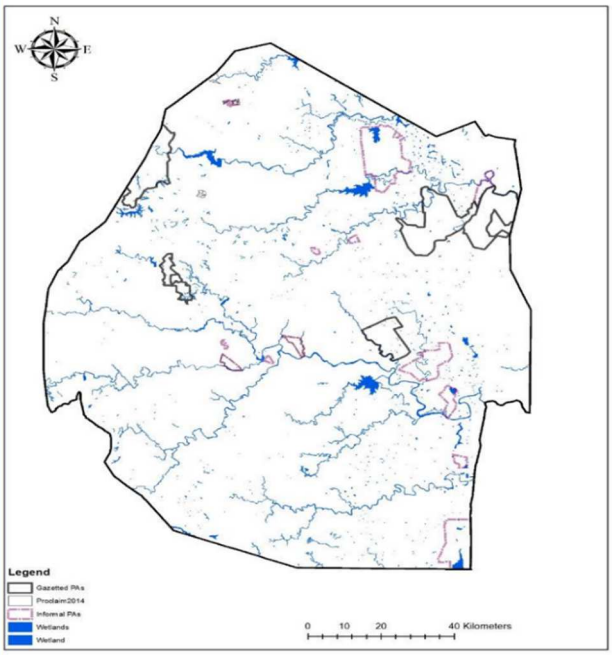
- Nationally, the Eswatini National Trust Commission has generated a map of the country's wetlands of importance as per the Ramsar Convention. The estimated total surface area of wetland in the country is 46,170 ha ± 128 ha, which is about 2.7% (34,000 square kilometres) of the total land area and most of them occur outside the protected areas.

- Information from "An Annotated Checklist of the Freshwater Fishes of Eswatini", E.J. Hyslop, 1994, updated with information from Richard Boycott, 2006, incorporating information from the 2002-2003 fishes survey. This information is readily available on the ENTC website.

- Farmers are encouraged to excavate bigger fishponds of least more than 300 m², for them to realise reasonable income from sales. Farmers are further notified about prevailing formal fish markets around the country. Several meetings have been held with community leaders and stake holders to sensitize chiefdoms on the implication of fish poaching and river pollution which threatens the distribution of aquatic species in almost all the river system in the country.

Relevant websites, web links and files

http://sntc.org.sz/biodiversity/sdfish.asp

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf	
Obstacles and scientific and technical needs related to the measure taken: ➢ Financial constraints (Inadequate budgetary allocation) have stalled the establishment of local fisheries management authorities as per the revised Fisheries Bill of 2015 and to undertake an updated regular national fish survey in the country's water bodies so to ascertain the composition of fish species by the Fisheries Section. ➢ Illegal, unregulated and unreported (IUU) fishing is rife for wild fish in the country and limited resources for inspections perpetuates this act. Inadequate infrastructural capacity for research and monitoring e.g. the Fisheries Section currently lacks a boat for use in monitoring activities. ➢ Monitoring of boreholes is not done and there is a need to increase capacity to that effect to enable effective monitoring of water sources.	
Relevant websites, web links and files https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf **Figure 14:** National Wetland Distribution  **(Source: ENTC, 2015)**	

7.1 Measure taken.

Promote best eco-friendly food production technologies, processing, climate smart systems and incentives of sustainable production.

Target 7: By 2022, all areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of Eswatini's biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The MoA, MoTEA, NGOs and other relevant stakeholders have promoted various crop production technologies including the Good Agricultural Practices (GAP) and Conservation Agriculture (CA) at projects and national scales.
- Conservation agriculture (CA) was introduced into Eswatini by the Ministry of Agriculture (MOA) with support from FAO and the Cooperation of the Development of Emerging Countries (COSPE) in 2002. It was piloted in two sites i.e. Shewula community in the north-east of the country and Kambhoke community in the south. In 2006, CA was rolled out to cover the whole country and participating farmers were supplied with the CA equipment and inputs. Advocates for CA in the country included the Ministry of Agriculture (MoA), private sector and civil society. Through Eswatini Agricultural Development Project, 2,118 farmers have been trained in sustainable agriculture, with 1,141 (54%) of those trained being females.

- Research studies have been conducted to support CA technologies (direct planting) results in better yields than conventional after second planting season. The promotion of CA has been done through field demonstrations, trainings and provision of equipment's. The promoted technologies include CA tilling & Seeding equipment's such as Ripper, Planter, Hand jab planter, direct seeded, hoe, boom spray etc. Furthermore, eco-friendly sprays have been recommended. CA promoted the planting of cereals and legumes that are open pollinated and plant material that are drought tolerant such as cassava, pigeon & cowpeas, groundnuts, sorghum, mung beans and sweet potatoes.

- Several national policies are in the process of formulation to enable sustainable implementation of agricultural production and these are;
  - National Agricultural Extension Policy Draft
  - Monitoring and Evaluation Policy
  - National Agricultural Research Policy
  - National Climate Change Policy
  - National Climate Change Strategy and Action Plan
  - National Wildlife Management Policy.

  Completed policies are the Disaster Risk Management Policy; which aims to prevent and minimize the impact of disasters and the Eswatini Resilience Strategy and Action Plan.

- Proposed legislation that is in the process of its enaction to enable sustainable agricultural production are;

- Plant Health Protection Bill, 2015 which aims to prevent the introduction and spread of pests, facilitate trade in plants and plant products.
- Eswatini National Research Authority Bill, 2015.
- Fisheries and Aquaculture Bill, 2015: To Regulate the fisheries industry
- Dairy Act Amendment Bill, 2017.
- Seeds and Plant varieties (amendment) regulation 2017: amendment regulations of 2002.
- Livestock Identification and Traceability Regulations, 2015: to give effect to The Livestock Identification Act 2001

➢ Subsidies promoting the sustainable crop production include farm inputs (fertilers, lime and seeds), tractor hire, dip tank construction and free dipping services, free trainings and extension services for improved livestock and crop production. Farmers get free livestock movement permits aimed at controlling diseases and livestock rustling and to enhance traceability of livestock movement. Furthermore, farmers get subsidized cattle sisa ranching where beef cattle off-take improves and farmers generate more income, improves genetic makeup of beef cattle.

Relevant websites, web links and files

http://www.gov.sz/index.php/component/content/article/141-test/2002-bills?Itemid=799

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

➢ The Land Policy is in its draft state and working towards its finilisation.

➢ The poor adoption of the CA technologies has been due to several reasons such as the intensiveness of hand operated equipment's, lack of adequate tractor drawn planters and rippers at RDAs, expensive tool to acquire and service and limiting environmental condition to adopt some of the techniques such as in the Lowveld due to climate change effects (limited soil moisture) and excessive heat. The three CA principle have not been fully adopted but only the limited soil cover disturbance principle is widely adopted and the rotation and permanent cover are marginally adopted.

➢ The country mainly focused on CA in the technologies of climate SMART agriculture.

➢ The inadequate skills for the maintenance of CA technologies such as that of irrigation systems and implements results in high costs of maintenance of such technologies in turn resulting in the reduced adoption of the technologies.

➢ Behavioural change is necessary.

Relevant websites, web links and files

https://operations.ifad.org/documents/654016/8c6e6160-aeff-4861-9c44-c4b36875579f

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

7.2 Measure taken.

Enforce and maintain buffer vegetation along aquatic bodies and conservation areas within agriculture and forestry plantations

Target 7: By 2022, all areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of Eswatini's biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Ministry of Agriculture is continuing with maintaining and rehabilitating fire breaks in government farms and annually covering and maintains about 90 km (minimum) to 304 km (maximum) depending on machinery availability. Private ranches, forest plantations and conservation areas do maintain fire breaks which are also grass land biodiversity areas.

- Sugarcane, citrus, and forest plantations in the country do manage conservation areas as required by international markets. Generally, agricultural and forest plantations preserve about 35% of conservation areas within their boundaries which includes aquatic (wetlands), trees and grass ecosystems. Additionally, these private farms have areas classified as high conservation value forest (where threatened species are found). Some companies go as far as protecting vulnerable ecosystem by establishing reserves and cordoning them off (fencing) from human activities. In the case of Ubombo sugar about 42% of the area is protected where 1,850 ha is a Nature Reserve which is a habitat to several important species. Also, the Van Eck dam under the company management is a Ramsar site since 2015.

- The five River Basin Institutions are tasked with managing the basins under their jurisdiction and private companies also have similar obligation to manage river lines. Positive feedback is observed on the less occurrence of incidents of illegal substances that are planted along the riparian zones due to an effective integrated management and enforcement by company rangers and police.

- Farmer companies along agricultural development areas are also required to leave conservation and buffer areas where endangered species are grown or reserved.

- The Natural Resources Management Act, 1951 prevents cultivation of crops within 33 meters of banks of public streams. Protect destruction of biodiversity rich ecosystems close to the riverbanks.

Relevant websites, web links and files

https://www.sgs.com/-/media/global/documents/technical-documents/reports/certification-reports/sgs-peak-timbers-en-11.pdf

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- The limited visibility and enforcement for compliance leads to some farmer companies extending their production areas into conservation areas and their actions compromise with the biodiversity conservation efforts made, since buffer zones are reduced and fertilizer pollutions in aquatic bodies become a threat.
- The target of establishing and maintaining fire breaks in government farms has not been met sufficiently due to financial constraints.
- The limited monitoring of aquatic bodies, has led to the increase in destruction of buffer zones. Therefore, the is a need to enforce legislation for sustained developments.

7.3 Measure taken.

Practice and implement best practices in food production systems

Target 7: By 2022, all areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of Eswatini's biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The government through the National Agricultural Marketing Board in partnership with Eswatini Standard Authority (ESWASA) have developed the fruits and vegetable production standards. Additionally, the entity was certified with HACCP and Global Gap for compliance to supply international markets. This has led to the Development and maintenance of the HACCP and Global GAP compliance framework.

- A study was done and showed that maize production drops per unit area due to Aluminium toxicity which informed the need of soil conditioning for maize production, Farm Mechanisation and Granular Fertiliser Application. Annually about 10,000 farmers are trained on best agronomic practices, for improved yields to ensure food security and income generation.

- The MoA has recruited regional plant protection officers in a bid to capacitate the phytosanitary office in its mandate to issue certificates clearing the movement of plant materials in a bid to control plant disease and pests' infections. Import permits are issued at the Malkerns Research Station and annually about 5,456 to 12,461 permits are issued. Also, the Central Veterinary Laboratory (CVL) is used as an early detection infrastructure of livestock through expeditious disease diagnoses.

- Community agribusiness projects such as KDDP farmer companies get training on Fair-trade compliance and on Safety, Health, Environment and Quality (SHEQ) management. LUSIP farmers are trained on agribusiness environmental compliance and they are monitored through audits. The sugar industry adopted the best management practices with environmental management guidelines and a manual is produced.

Relevant websites, web links and files

http://www.gov.sz/index.php/ministries-departments/ministry-of-agriculture/veterinary-a-livestock/80-agriculture/agriculture/693-veterinary-field-services

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

8.1 Measure taken.

Determine the impact of existing pollution prevention and control initiatives, perform gap analysis and Capacitate institutions

Target 8: By 2022, all forms of pollution in Eswatini have been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Findings of a gap analysis on the Water Pollution Control Regulations, 2010 are that it does not provide for pollution from agricultural activities, which are not channelled through a definite discharge point. Furthermore, water quality objectives do not consider water standards for water to be used for agriculture. The Environment Management Act, 2002 has limited collaboration outlined with DWA, MoA and the decentralized water management structures in the monitoring of water quality and impact of new developments on the environment.
- Through the support from UNEP and multilateral fund under the Montreal Protocol the refrigeration manufacturing company in the country (Palfridge Limited) has phased out the use of HCFC 141b in its PU insulation foam production for domestic and commercial refrigerators. The company completed the conversion project of refrigerants HCFC22 and HFC 134a to isobutene and propane refrigerants. The company also won an award for its conversion.

- Three vocational training institutions were identified to serve as referral centres for training of technicians and the management of some set of equipment's for the technicians in the country. They are also used to collect data on ODS consumption. UNEP and UNDP have been strengthening these institutions through the provision of equipment building their capacity.
- The Eswatini Environment Authority has trained a lot of service technicians on good refrigeration practices in the country on an annual basis in a bid to build capacity. These technicians are from the formal and informal servicing sector throughout the country.
- The Regulations of Ozone Depleting Substances designate customs officials as inspectors and have been capacitated and given gadgets for detecting.
- Eswatini is leading in Africa in terms of phasing out the ODS.
- A National Solid Waste Management Strategy (NSWMS) was compiled by the Ministry of Tourism, and Environmental Affairs.

- Eswatini's e-waste management pilot project conducted in 2017.
- A national inventory on open burning practices and unintentional persistent organic pollutants (uPOPs) releases was done in 2017

- The EEA through technical assistance from the United Nations Institute for Research and Training ran a project that aimed compile a national chemicals profile which would be an indication of the current status of chemicals management in the country followed by the development of the National Implementation Plan through the Stockholm Convention to ensure sound management of chemicals.
- EEA has implemented the Strategic Approach to International Chemicals Management (SAICM). The National Implementation Plan was adopted, and the strategy aimed to eliminate lead in paint and to implement the globally harmonized system of classification and labelling of chemicals.

- The country is party to some chemical management protocols these include;
  - Stockholm Convention on Persistent Organic Pollutants (POPs).
  - The Rotterdam Convention of Prior Informed Consent Procedure for Certain Hazardous Pesticides and other Chemicals in International Trade
  - The Basel Convention on Trans-boundary Movement of Hazardous Waste
  - Mercury under the Minimata Convention.

- Public awareness was done on POPs where agricultural extension officers were trained on how to recognise and handle them. At a national level the expired chemicals were stored in one central warehouse for safe disposal.

- Spillage done in water bodies requires that EEA gather samples for testing and the principles of polluter pays for remedial programmes to mitigate are applied.

- Cooling station for trucks in Malagwane Hill aims at reducing the incidents of accidents that leads to pollution.

- There is a SHERQ forum for environmental officers at national level where they share experiences and helps build capacity on BAT (best available technique)/BEP (best environmental practise).

- The MoH-ENV, company towns and Local authorities in their areas of jurisdiction do monthly monitoring on pollution and related issues and reports to EEA.

- A toll-free number for reporting pollution incidents is available for EEA.

- The current state of existing pollution control infrastructure is that old technologies for water management, e.g. use of analogue water measuring technology are used. There is inadequate enforcement of water meter installations for irrigation and other water users. Also, there is poor data gathering and information management systems resulting in data being scattered, not harmonized and rarely communicated to stakeholders.

- A national capacitation towards pollution prevention was done through the Centre for Science and Environment (CSE) which is based in India. A cooperation MoU was signed for the purpose of strengthening compliance and enforcement regimes in Eswatini, with a focus on solid waste management, through capacitation of EEA and municipal personnel.

- Infrastructure capacity for water pollution prevention efforts are seen through the construction of new wastewater and sewerage treatment plants in towns of the country.

Relevant websites, web links and files

http://www.fao.org/fileadmin/user_upload/agwa/docs/IA_Swaziland_FINAL.pdf

http://www.sea.org.sz/pages.asp?pid=88

http://www.sea.org.sz/pages.asp?pid=26

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

8.2 Measure taken.

Amend and or develop new pollution prevention and control legislation and raise awareness of legislation

Target 8: By 2022, all forms of pollution in Eswatini have been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Control of Plastic Regulations, 2015 is still a draft, the ministry is still consulting on the best option for the country in handling the issue of plastic bags. Once such consultation is complete, the regulations will be re-tabled in the House of Assembly.

- The Hazardous Waste Regulations are being developed and the Ministry of Tourism and Environmental Affairs aims at coming up with a robust legislative framework to Domesticate the Basel Convention and address the growing challenge of Hazardous waste currently accumulating in the country.

- The Pesticides Management Act of 2017 has an objective to regulate the importation, manufacture, exportation, distribution, sale and use of pesticides in order to enable people to obtain the benefits with minimal adverse effects on human, animals and the environment.

- The Public Health Act, 1969 gives local authorities power to enforce pollution article 8 & 11
- The country established the Ozone Depleting Substance (Amendment) Regulations, 2014.
- The import and export of hazardous chemicals requires a license for transboundary movement as required by the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.
- Within EEA there are officers responsible (designated) for waste management and these are inspectors for each of the four regions of the country.
- The country has formed a National Climate Change Policy, 2016 and a National Climate Change Strategy and Action Plan which are aimed at mitigating emissions of GHGs.

- The forestry and sugarcane industry conducts trainings to chemical handlers who are trained on how to handle chemicals in a safe manner. The plantations further do waste clean-up campaigns and teach fire crews and nearby communities on how to practice cool burning.

- The EEA has been focal in several anti-littering campaigns under different themes;
  - **No Plastic Day:** purpose of the campaign was to educate the public about the real cost of the plastic to the environment. All major supermarket retailers in the country came on board and participated in this campaign where it was agreed that all consumer plastic bags with a wall thickness of 24 micrometres and above be made available to shoppers at an experimental cost of E1.
  - **Zero littering:** The campaigns were held in the four regions of Eswatini. The aim of the campaign was to sensitize the public about the litter problem in the country and also teach them about how to manage waste.
  - **Clean-up Activities:** Regional clean-up activities were undertaken across the country in collaboration with the Ministry of Education and Training (MoET) and the Ministry of Tinkhundla Administration and Development (MoTAD.
  - **National events Litter Management:** ceremony held at Lobamba and Mbangweni Royal Residences respectively; Easter Service and Incwala ceremony the EEA in collaboration with the Ministry of Home Affairs (MoHA), Ezulwini Town Council and the King's Office coordinated an integrated clean up campaigns for Umhlanga (Reed dance), Incwala and Easter Service that take in Lobamba. Most surveillance and monitoring activities focused at Ludzidzini and Ngabezweni for the Incwala ceremony.

Relevant websites, web links and files

http://iefworld.org/elcleanswazi.htm

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- There are limited monitoring and evaluation exercises to quantify progress and impact of pollution pilot projects and programmes being implemented.
- The complex interplay creates conflicts on enforcement of pollution prevention legislations.
- The Public Health Act, 1969 is old but currently under review.
- The non-existence of synergised way for institutions designated with working on pollution this results in conflicts.
- Reports submitted to EEA should be analysed for public assimilation but that is not happening.
  - Reports for licensing, from local authorities, MoH, company towns, EMPs, CMP and EIAs.

8.3 Measure taken.

Enforce legislation on pollution control, monitor and evaluation of compliance

Target 8: By 2022, all forms of pollution in Eswatini have been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

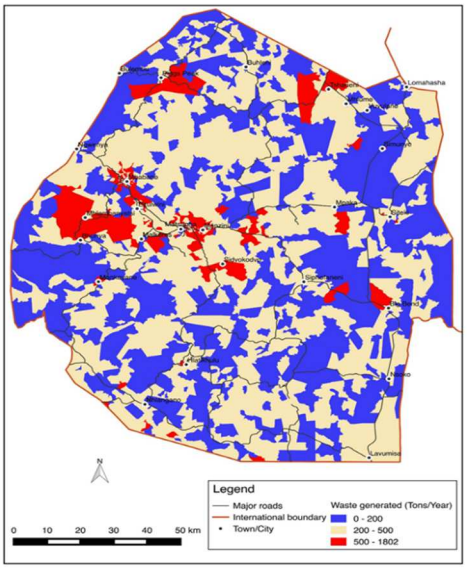
- The country has prepared an urban and peri-urban water and wastewater master plan. An Integrated Waste Management and Environmental Management Plans has also been developed. Furthermore, EEA administers licenses on General Waste and Special or Hazardous Waste management. The principle of the waste hierarchy aiming at promoting waste minimization, re-use and recycling within the towns/cities is being embraced in order to reduce the volumes of waste disposed at the municipalities-controlled dumpsite, thereby prolonging their life spans.

- River water pollution is periodically monitored at different locations and samples are taken to the Council for Scientific and Industrial Research (CSIR) for analysis which houses an accredited laboratory for testing key pollutants. Section 5 of the Air Pollution Control Regulations, 2010 is being enforced by EEA, and companies are ordered to submit their stack emission analysis results and the monitoring of ambient air quality for compliance in coal-fired boiler and incinerators is ongoing. Furthermore, fines and infringement notices have been issued where pollution incidences have been noted, especially where emissions of dark fumes have been observed or reported by the public.

- The Litter Regulations were adopted in 2011.

Relevant websites, web links and files
https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Figure 15: National Waste Generation Per Annum



(Source: Dlamini W., 2018)

Obstacles and scientific and technical needs related to the measure taken:

- There are inadequate resources in terms of human, technical and financially capacities by implementing institutions leading to poor enforcement.
- There is limited coordination and synergies between lead implementing agencies resulting in uncoordinated efforts.
- No accredited laboratories for pollution monitoring.

9.1 Measure taken.

Assessment of new and established IAPs, their major pathways and develop effective surveillance mechanisms.

Target 9: By 2022, invasive species that are alien to Eswatini, and their pathways, are identified and prioritized; priority species are controlled or eradicated, and measures are put in place to manage pathways to prevent their introduction and establishment.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been ineffective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Survey and Mapping of the IAPs Report of 2010 conducted by the Agricultural Research Council, Institute for Soil, Climate and Water, indicated a crisis regarding the rate of invasion and subsequent infiltration of the various ecosystems by IAPs in the country. Sixteen IAPs are of high priority and their distribution and abundance shows a strong correlation with the four major ecological zones of Eswatini. These species are *Chromolaena odorata, Solanum mauritianum, Lantana camara, Caesalpinia decapetala, Rubus species, Eucalyptus species, Psidium guajava, Jacaranda mimosifolia, Opuntia species, Pinus species, Cereus jamacaru, Ricinus communis, Senna didymobotrya, Sesbania punicea, Melia azedarach and Acacia mearnsii*. The results of the survey and mapping of IAPs revealed that IAPs cover approximately 47% of the country. The species *Chromolaena odorata, Lantana camara, Solanum mauritianum* and *Ceasalpinia decapetala* which are subject to the survey cover about 44%. The other twelve Invasive Alien Plant Species cover about 3%.

- Early detection and surveillance activities include phytosanitary permits for imported plant materials by public members or companies. Within some private farms for example the forestry industry surveillance of IAPs is conducted by the planning department which conducts site inventories across their plantations. The sugarcane, forestry and citrus industries have fully integrated weed identification, classification, rating and control system in place for both planted and open areas as a requirement by their produce markets.

- Other nature reserves working on PAs have trained rangers on the use of spatial monitoring and reporting tools e.g. ENTC rangers received training at the Southern African Wildlife College.

- Pathways of IAPs have been identified as;
  - **Rivers:** are one of the major IAPS pathways since invasive species thrive along river basins, which require special attention from River Basin Authorities.
  - **Cities and towns:** tend to serve as seed banks for IAPS in the country because some people in town keep IAPs for ornamental purposes while others allow IAPs to thrive out of ignorance and are not aware of the dangers these species pose in the country.
  - **Schools:** generally, in schools IAPs are left to flourish hence it is common in many schools that their surroundings are infested by IAPs.
  - **Road reserves:** are seed banks for IAPs which infest neighbouring areas e.g. exportation or importation of soil material from one area to another in development processes.
  - **Wild and domesticated live foraging:** the movement patterns of animals promote the spread of IAPs e.g. bats for *Melia azedarach*.
  - **Land degradation:** heavily degraded areas are host to IAPs e.g. overgrazed rangelands, uncontrolled fires.

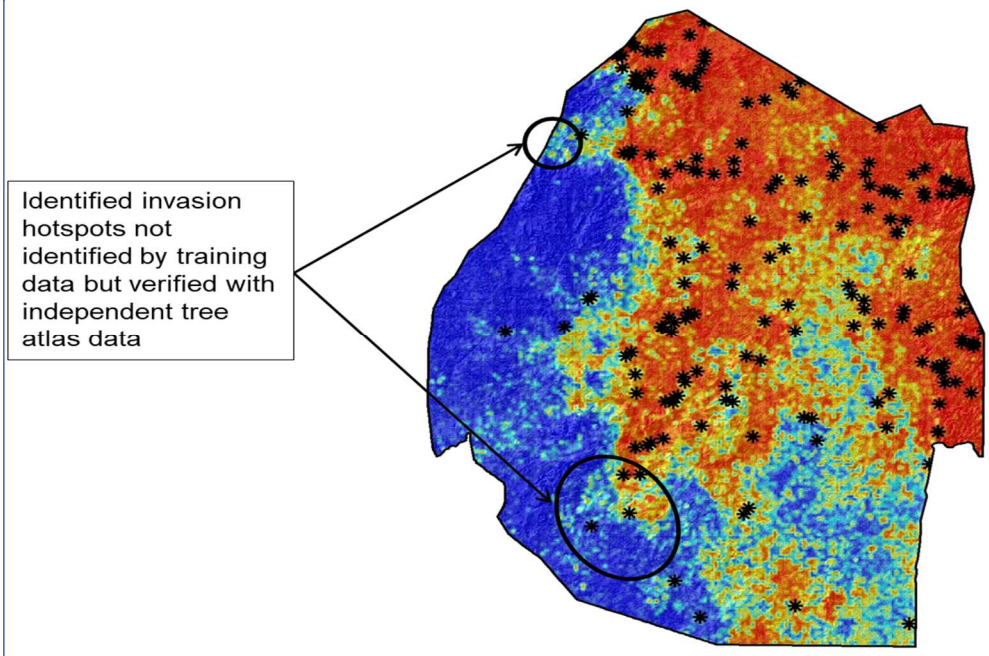
- **Underutilized:** Native species become overgrown and die back giving IAPs empty niches to grow

Relevant websites, web links and files
http://www.sntc.org.sz/alienplants/speciesinfo.asp?spid=137

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Other relevant information

Figure 16: Alien Plant Invasion Pressure



(Source: Dlamini W., 2018)

Obstacles and scientific and technical needs related to the measure taken:

- It is now 19 years after the last IAPs inventory and no detailed IAPs inventory has been done after 2010 to check trends on IAPs invasion. This makes it difficult to identify and know all invasive free areas and to prevent them from being colonised. This applies to invasive alien animal species as well. Generally, most ranches have limited budgets or programmes for controlling IAPs Some of the farms are severely infested with IAPS due to poor management or negligence or lack of resources. Several government farms and premises are also infested with IAPs and limited efforts are done to curb the proliferation of these invaders. Likewise, in communal range lands limited action is taken to control spread of IAPs.
- There is ineffective monitoring at entry points for imported plant material since there are no phytosanitary inspectors placed in the trade ports.
- In some cases, the infestation is a result of inability of town boards to penalize people for not controlling IAPS on their properties. There is general apathy in peri-urban areas because the landlords are not taking responsibility to controlling IAPS while tenants are not concerned about the issue of IAPS.

9.2 Measure taken.

Finalize the existing draft strategy and implement it, Strengthen public awareness activities, Capacity building on the control and management of IAPS.

Target 9: By 2022, invasive species that are alien to Eswatini, and their pathways, are identified and prioritized; priority species are controlled or eradicated, and measures are put in place to manage pathways to prevent their introduction and establishment.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been ineffective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Multi-stakeholders (ENTC, municipalities, Forestry department, ESWADE, NGOs etc) have been involved country wide on the control awareness campaigns of IAPs where topics relating to identification, control (cutting and chemical spray), hazards and benefits of controlling have been taught. Target audiences range from community members, community leaders, school students, personnel in organisations and the general public. Platforms used to disseminate information include radio, print media, routine extension services, workshops and commemoration days.

- Different communities falling under project development areas (ESWADE, ENTC) in the country have been involved in the eradication of alien invasive plant species.

Obstacles and scientific and technical needs related to the measure taken:

- There is limited enforcement of laws relevant to the control of IAPs and there no formulation and implementation of sound and effective control strategies.
- There are cases of conflict of interest on IAPs utilization and their control, and that leads to communities not taking ownership in control of the species e.g. *Melia azedarach* used to enrich livestock nutrition. Also, the lack of adequate alternative income generating initiatives to incentivize the control of IAPs is a great weakness.
- No overarching legislation on IAPs control and their management strategy.

10.1 Measure taken.

Identify the most vulnerable and valuable ecosystems, anthropogenic pressures affecting these and develop mitigation and rehabilitation measures

Target 10: By 2022 pressures on Eswatini's vulnerable and most valuable ecosystems such as (Savannah woodland Mosaic forests and wetlands) are identified and prioritized; priority pressures are controlled or eradicated.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The state of the environment report, 2013 highlights three ecosystems that are degraded and these are
  - **Indigenous forests:** the current deforestation and degradation of the natural forest and woodland areas is caused by a combination of factors such as conversion of land for agriculture and settlements, infrastructure development and uncontrolled extraction of timber and non-timber forest products, including fruits, edible plants and vegetables, fuelwood, wood for utensils and craft, medicinal plants, materials for traditional attire.
  - **Aquatic:** invasive alien species (IAs) influence the aquatic environment which result in the reduction of river flows. Poor water quality reduces usable water quantity and negatively affects the aquatic and riverine ecosystems biota. Along rivers, the removal of riparian vegetation for cultivation and to create access to rivers, undermines the ecological integrity of fresh water ecosystems because of the important role riparian vegetation has in the maintenance of channel stability and as a source of food (through leaf-fall, for instance) into the aquatic system. Deterioration of water quality is mainly due to the addition of chemical, biological and physical pollutants into the water system.
  - **Rangelands:** Over-exploitation of resources has occurred as a result of unsustainable crop production systems and grazing practices, where high grazing densities on communal rangelands leads to erosion and their quality degradation.

- The Eswatini vulnerability assessment and analysis report of 2017 states that pastures condition in the Lowveld and dry Middleveld is at average to poor condition as evidenced by the reduction in vegetation cover.

- Systemic response; has seen relatively new national policy responses to land management and these include
  - **National Climate Change Strategy and Action Plan, 2016:** Promote adoption of sustainable land management practices such as the soil management, seed management, promote rainwater harvesting for crop and livestock production to increase the buffer and adaptive capacity of smallholder farmers.
  - **National Water Policy 2018:** Encourage water use efficiency in all sectors and the designation of flood plains to ensure public safety.
  - **Agriculture Research Policy, 2011:** To ensure improved, participatory and strategy driven responsive research for agricultural development in the country.
  - **Fresh Water Fisheries and Aquaculture Policy in Eswatini, 2011:** Update the fisheries laws and regulations and to improve the management of watershed areas.
  - **Technology needs assessment report:** advocates for the use of adaptation actions as climate technologies.

- The formulation of community development plans (CDPs) requires the establishment of land use plans and soil surveys, the establishment of rangeland committees and natural resource management committees. Afforestation activities for soil conservation are carried out and the department of forestry provides subtropical and tropical trees grown from their nurseries.

- In 2014 a baseline study for strengthening the national Protected Areas (PAs) System of Eswatini was conducted and the PA analysis involved the collating and analysing of data to review the previous PA assessments and Protection Worthy Area Reports,
- The Biodiversity research symposium is held annually at the UNESWA about the savannah research projects and other work done in the country in a bid to find best ecosystems management.

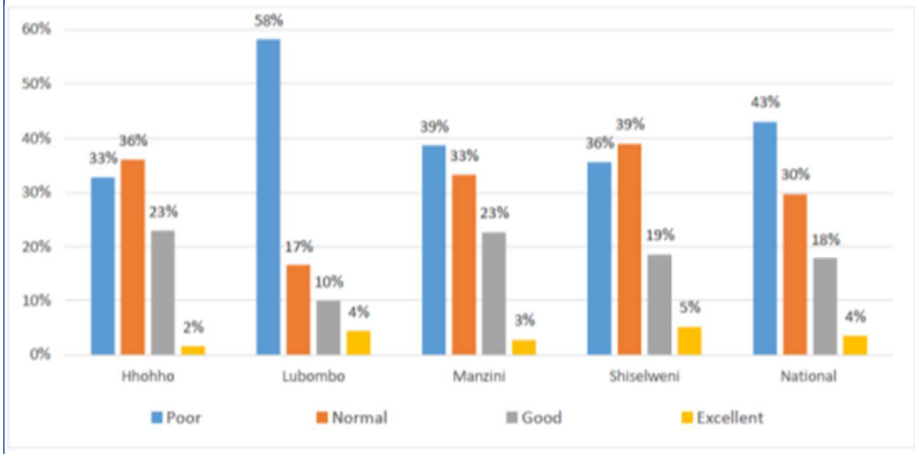
Relevant websites, web links and files

http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/Swazi%20VAC%20Annual%202017%20Report_Final.pdf

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Other relevant information

Figure 17: Eswatini Range Land Conditions



Country wide rangeland condition

(Source: VAC, 2017)

11.1 Measure taken.

Determine biodiversity hotspots, carry out carbon stock assessment, update the PWA report, prioritize identified PWA for conservation

Target 11: By 2022, at least 10 per cent of Eswatini's land area, especially areas of importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- A rapid field-based assessment of Eswatini's Protection Worthy Areas (PWAs) was carried out during the year 2001 whereby 44 areas worthy of considering as Protection Worthy were visited and assessed. In the rapid assessment for protected areas and their effective management these areas were scored in terms of their assets (both biodiversity and socio-economic) and threats. The assets for Biodiversity Importance (Bio Import) involved scoring both Biodiversity Representation and the likelihood of biodiversity persistence. The assets for Socio-Economic Importance included scoring Tourism potential, Resource use potential and Cultural and archaeological importance. Bringing these together, areas were scored according to their overall importance. The following threats were considered: alien animals, alien plants, resource utilisation, poaching, settlement, land conversion, isolation, pollution and erosion. Each threat was assessed according to the imminence, range, impact and permanence of the threat and this information was used to score the overall degree of threat to each area.

- The PWA report identified nine areas of high overall priority based on high overall importance and high overall degree of threat. These are, in descending order of priority: Mdzimba, Ngwempisi (Ntungulu), Nyonyane, Ndlotane, Mahhuku, Jilobi, Shewula, Manzimnyame and Makhonjwa.

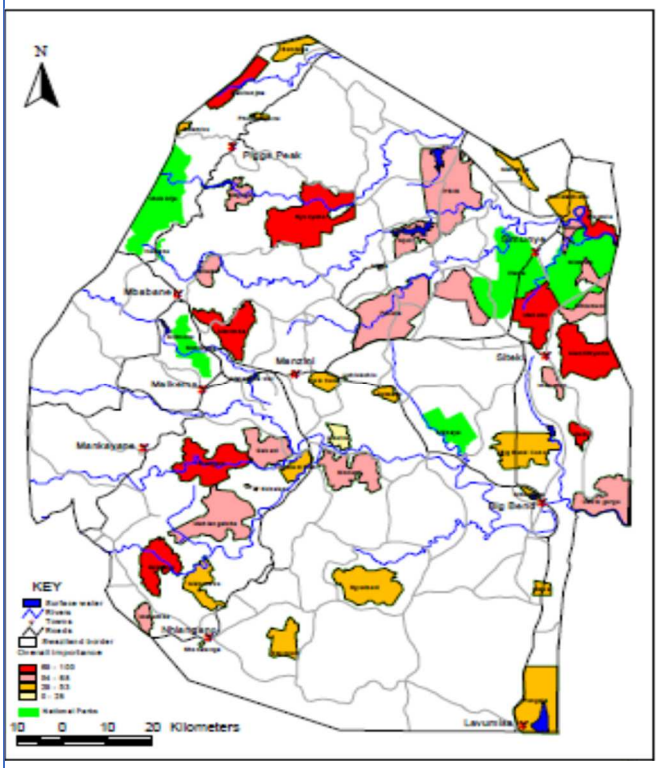
- Carbon stock was broadly determined into biomes namely, savannah, forest, aquatic and grassland biomes. Detailed species are assessed to determine the threatened, endangered and vulnerable species that occur in that PWA. Furthermore, endemic species are also noticed.

- A training was conducted on how to carryout carbon assessment of forest resources which detailed on how to do inventory of GHG for forestry under AFOLU sector.

- There are assessments done on carbon stock in the country under the land degradation neutrality (LDN) project of 2017 and the ESWADE studies on carbon stocks under the LUSIP-GEF project.

Other relevant information

Figure 18: Eswatini Protected Worthy Areas



(Source: Roques, 2002)

11.2 Measure taken.

Revise existing laws on proclamation of protected areas, gazette and manage identified protection-worthy areas as well as develop a management plan.

Target 11: By 2022, at least 20 per cent of Eswatini's land area, especially areas of importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- To review existing laws governing protected areas in the country the Eswatini National Trust Commission Amendment Bill, 2015 has been formulated with the aim of aligning the SNTC Act with the Public Enterprise (Monitoring and Control) Act of 1989, supporting SNTC commercialization activities and aligning it with the requirements of International Conventions.

- The ENTC has completed the formal protection and gazetting of five new private reserves after Cabinet approval, namely: Lomati Nature Reserve, Phophonyane Conservancy, Lubuyane Nature Reserve, Emantini Nature Reserve and Libetse Nature Reserve and the total area of protected area has increased from 3.9% to 4.26%. Furthermore, Gazetted requests for Shewula and Mambane have been submitted to the Ministry of Tourism and Environmental Affairs for further action, while Shewula, Luzelweni communities have identified, committed and set aside land for conservation.

- The combined total area of informal and formal protected area is above 8%.

- Wetland area gazetted under the Natural Resources Management Act of 1951 has Public Stream Banks Regulation, that provide for 33 m buffer zone in aquatic bodies.

- Management plans for existing protected areas are continuously done to conduct studies on community-based approaches to biodiversity management. Land-use maps and landscape mapping has been completed to facilitate for development of the landscape management plans. Some of the planning activities executed include nine biodiversity surveys done in three landscapes that lead to the description of the floristic assemblages, small mammals, reptiles, amphibians, game counts, annual fire management programme (AFMP) and the MODIS monitoring of active fire and burned area data used for planning and setting targets.

11.3 Measure taken.

Support traditional authorities to regulate the usage of biodiversity and ecosystems, integrated landscape management to stakeholders (private, communities, local authorities) and publish information booklet to enhance the implementation of NRM in rural areas

Target 11: By 2022, at least 20 per cent of Eswatini's land area, especially areas of importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Community based natural resources management (CBNRM) programmes were implemented and trust committee members were trained on the formulation of trust documents and develop their constitutions.
- About thirty-one land-use plans and maps for communities were approved and adopted by the communities for the development of Chiefdom Development Plans (CDPs) and some of the CDPs have been launched which are a minor fraction of the 385 chiefdoms the country has.

- The chiefs tour of 2014 to Tanzania where 22 chiefs were taken for training on how chiefs there manage their natural resources, has had a positive spill over on the adoption of CDPs in different parts of the country outside project areas of LUSIP-GEF.

- Three rock sites have been identified and two at Ekufikeni and one at Entfubeni. These were documented, photographed and will be protected as National Heritage Sites.

- The Surveyors Generals office is collecting data for the Sustainable Land Administration and Management project which employs GIS to delineate chiefdom boundaries (for better understanding of admin and land holding).

Relevant websites, web links and files

http://www.gov.sz/index.php/ministries-departments/ministry-of-natural-resources/surveyor-general

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- Competing land uses between nature conservation and other forms of land use such as housing, agriculture continues to limit the extent of achieving an increase conservation area.

11.4 Measure taken.

Develop an Off-setting framework to handle land conversion, provide incentives for owners to maintain important ecosystems and improve conservation and ecotourism infrastructure for product development or marketing programmes.

Target 11: By 2022, at least 20 per cent of Eswatini's land area, especially areas of importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- In a bid to handle land convention in biodiversity rich areas (PAs) the draft Mining Guidelines were formulated to draw off set strategies that will lead to minimised degradation on biodiversity rich areas.

- As an incentive to increase PAs a proposal to support informal PAs was advertised in the local print media and one of the conditions set for support is evidence of efforts with an intent to be formally gazetted. Fencing infrastructure is one of the incentives that were offered.

- Conservation infrastructure assistance granted for communities is in the form of fencing such as that of the Shewula Mountain Camp and fencing of the proposed Shewula Nature Reserve (38.3 km). Conservation infrastructure on private land include the fencing of the Phophonyane Nature Reserve (7.3 km) and the mapping of Libhetse (23.3 km), Mantini (18.1 km), and Lomati Nature Reserves in preparation for their fencing. Lastly, fencing infrastructure done for ENTC managed nature reserves on Malolotja (75.6 km)

and Mlwawula (83.6 km). Biological infrastructure improvements include the clearing of thickets at Mantenga and Mlawula Nature Reserves.

- Eco-tourism infrastructure improvements include the rehabilitation of the ENTC Mantenga Nature Reserve reception structure and the establishment of Wi-Fi connection within the ENTC tourism facilities. A new ENTC brochure was designed in 2014 and distributed in hotels, border gates and tour operators, with an aim of creating a distinct and visible ENTC brand.

- Work is in progress on the project Strengthening the National Protected Areas System of Eswatini which aims to strengthen the management effectiveness of existing PAs in addressing threats, while expanding the Protected Area (PA) estate to incorporate protection worthy areas that would have progressively been degraded as the pressures mount.

Relevant websites, web links and files

http://sntc.org.sz/documents/EswatiniBiodiversityPortalOperationManual.pdf
https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

12.1 Measure taken.

Update Red data list for all threatened species, develop a framework for species management plans, and strengthen community management capacity

Target 12: By 2022, the extinction of species known to be threatened in Eswatini has been prevented and their conservation status, particularly of those that are endemic and those most in decline, has been improved and sustained.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The biodiversity survey conducted during the SNPAS (2016/17) base line highlights an increase in threatened species.
- Red list species data for flora and fauna is continually updated in the ENTC website.
- The importance of Trans-Frontier Conservation Areas (TFCAs) for collaboration is increasingly recognised and supported. This is an international agreement signed by (Eswatini, South Africa & Mozambique) the respective countries to facilitate co-operation for conservation and tourism development within these areas. There are four core TFCAs involving Eswatini are:
  - Malolotja-Songimvelo;
  - Lubombo Conservancy-Goba;
  - Ndumu-Tembe-Futhi-Mambane;
  - Jozini-Pongola.

- There are several migratory species which need protection and for such species multi-country collaboration is needed in the development of conservation management plans. Eswatini has recently ratified the

Convention on Migratory Species and as such areas serving as important refuges and corridors for migratory species deserve attention, and this is also important on the context of the TFCAs.

- There are 19 species on the IUCN (2013) Globally Threatened Species list which are native to Eswatini. The current distribution of these species was considered based on up to date records in relation to the PA network. Of the 19 globally threatened vertebrate species, 6 are locally extinct in Eswatini and 11 are found within Gazetted PAs. One other would be conserved within the potential new PAs leaving only one globally threatened species (*Gys coprotheres*) out of the likely future PA network.
- The up to date records in relation to the PA network show that of the 39 nationally threatened vertebrate species 6 are regionally extinct and 27 are found within Gazetted PAs. Two others are conserved within Informal PAs and another two would be conserved within the potential new PAs leaving only two nationally threatened species (*Barbus brevipinnis* and *Amphilius natalensis*) out of the likely future PA network.
- The 40 plant species threatened in the country, twenty-nine of them occur within National PAs, a further 3 occur in Informal PAs and the balance except for one species (*Ficus sansibarica* Warb. ssp. Sansibarica) are found in potential new PAs.

- A survey of threatened vertebrates of the country was done in 2002/3 where amphibians, birds, mammals, fishes, and reptiles were assessed. Part of the management plans include the protection of threatened species in parks or reserves such as those controlled and supervised by ENTC. The country developed the Swaziland Environmental Action Plan (1997) which aims to;
  - Provide a state-of-knowledge overview of the environmental conditions in the country;
  - Identify, prioritize and where possible quantify environmental problems;
  - Establish a clear indication of government's priority areas with respect to the environment so as to guide and give proper orientation to donor intervention in this field;
  - Establish a framework which provides coherent direction for the process of environmental monitoring and action planning in the future; and
  - Provide a framework for continuous development and environmental policy dialogue within the country and with donor partners.

Relevant websites, web links and files

http://www.sntc.org.sz/biodiversity/florardb.asp

http://www.sntc.org.sz/biodiversity/faunardb.php

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

13.1 Measure taken.

Assessment of genetic diversity for crops and livestock, strengthen germplasm and DNA banks and promote maintenance of in-situ/ on-farm conservation areas.

Target 13: By 2022, the genetic diversity of cultivated plants and domesticated animals and their wild relatives, including other socio-economically as well as culturally valuable species, in Eswatini, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- A national genetic resources assessment report was compiled through the support of FAO on the 31st May 2017.
- The country Red Data Book of 2003 indicates that there are 846 species of vertebrates that have been recorded in the country comprising of 60 species of fish, 44 amphibians, 111 reptiles, 500 birds and 131 mammals.
- The country's livestock sector is based on just 5 species which include the indigenous purebred Nguni and the exotics Brahman, Simmental, Drakensberger and Nguni cross.

- Just over fifty species of fish have been recorded in the country. These include *Barbus trimaculatus, Clarias gariepinus, Oreochromis mossambicus, O. macrochir, Serranochromis robustus, Tilapia rendalli, T. sparrmanii,* and *Schilbe intermedius* all recorded in the Sand River Dam.
- In-situ conservation occurs by default where a species occurs and is thus managed inside farms. Whilst they were mostly initially set up for conservation of animals, most protected areas try to actively monitor threatened forest species that occur within their boundaries.

- Plant Genetic Resources: A total of 3,441 species of plants in 1,124 genera and 244 families are known to occur in the country. Crop relatives and landraces recorded in the country include *Sesamum alatum*, *Sorghum spp.*, *Cucurbita spp.*, *Vigna spp*, *Arachis hypogea*, *Zea mays, Phaseolus vulgaris*, *Ipomea batatas*, *Manihot esculentus, Colocasia esculantus*. Maize is increasingly grown from hybrid seed although some farmers continue to grow open pollinated varieties. Landraces of crops such as Bambara groundnut, cowpea etc. are maintained by farmers. Royal residences maintain some of the country's landraces of sorghum. Collection of germplasm held at the NPGRC is 712 accessions from 30 species. Indigenous honeybees i.e. *Apis mellifera* subsp. adansoni and *A. mellifera* subsp. scutallata found in natural forests, eucalyptus forests, citrus plantations and field crops are used for honey production under natural conditions.

- The PGRC submits samples to SADC.

- The National Plant Genetic Resources Centre of the DARSS established an in-situ field gene bank for at the Lowveld Experimental Station in order to maintain wild species collections. Species in the field gene bank include *Aloe saponaria* which was being over-harvested people from surrounding communities for income generation. Other species were found to occur within the area which was eventually fenced off to protect the diversity of species that occur in the area. *Agave sisalana* was rescued from an inundated area which is now occupied by the Lubovane dam.

- The government has reserved a farm to conserve Nguni cattle through the Nsalitje Cattle Breeding Station. *Ex- situ* preservation is not done in the country but in a regional centre found in Botswana regional Livestock gene bank used for in-vitro conservation.

- The TNA assessed conservation of genetic resources as an adaptation action on climate change.

- COSPE has established an in-situ gene bank at the community level where demonstration plots on plant genetic resources agro-ecology and conventional method on 20 seed accessions. The bank has four crop types, cowpeas, sugarbeans, maize, sorghum. Plateau (Maize sugar bean) lower Lowveld (cowpeas and sorghum).

Other relevant information

Table 2: Germplasm Held at the National Plant Genetic Resources Centre

Crop	SiSwati Name	Scientific Name	Number of **accessions held**
Okra	Mandwandwa	*Abelmoschus esculentus*	7
Groundnuts	Ntongomane	*Arachis hypogea*	60
Pigeon pea	Livikandlala	*Cajanas cajan*	4
Watermelon	Lihwabha	*Citrullus lanatus*	4
Jute	Ligusha	*Corchorus olitorius*	11
Pumpkin	Ematsanga	*Cucurbita spp.*	24
Sunflower	Bhekilanga	*Helianthus annus*	4
Gourd	Emaselwa	*Lagenaria spp.*	33
Rice	Lilayisi	*Oryza sativa*	1
Beans	Emabhontjisi	*Phaseolus vulgaris*	43
Sesbania		*Sesbania spp.*	6
Sorghum	Emabele	*Sorghum bicolor*	85
Mungbean	Mngomeneni	*Vigna radiata*	15
Maize	Ummbila	*Zea mays*	175
Cowpea	Tinhlumaya	*Vigna anguiculata*	50
Jugo bean	Tindlubu	*Vigna subterrenea*	38
Amaranth	Imbuya	*Amaranthus spp.*	18
Pearl millet	Nyawotsi	*Pennisetum glaucum*	5
Velvet/ Coffee bean	Likhofi	*Mucuna pruriens*	1
Sesame	Ludvonca	*Sesamum alatum*	11
Onion	Anyanisi	*Allium cepa*	2
Leersia		*Leersia hexandria*	21
Kale		*Brassica spp.*	2
Guar bean		*Cyamopsi tetregonoloba*	1
Melon/ Wild cucumber	Emajoti	*Cucumi spp.*	28
Chillis	Pelepele	*Capsicum fruitescens*	2
Eggplant	Intfuma	*Solanum macrocarpon*	1
Luffah	Sipontji	*Luffah cylindrica*	2
Momordica	Inkakha/tjwala betinyoni	*Momordica spp.*	5
Wild cotton	Kotini	*Cienfuegosia hildebrandti*	18
Cassava	Umjumbula	*Manihot esculenta*	5
Sweet potatoes	Bhatata	*Ipomea batatas*	8
Zulu potato	Ematamabane	*Scolopia sp*	4
Banana	Banana	*Musa CVS.*	10
Livingstone potato	Umhlata	*Plectranthus esculentus*	4
Cooper's Squill	Umhlabelo	*Ledebouria ovatifolia*	3
Taro	Emathapha	*Colocasia esculenta*	1
		Total	**712**

(Source: SEBFA, 2017 and NPGRC questionnaire, 2019)

Relevant websites, web links and files

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

https://tech-action.unepdtu.org/wp-content/uploads/sites/2/2019/07/tna-mitigation-report-swaziland-july-2016-final.pdf

http://www.sntc.org.sz/flora/clbotalpha.asp?l=l

Obstacles and scientific and technical needs related to the measure taken:

- There is lack of data on the associated components of biodiversity across the country's production systems, it is not possible to comment with certainty on ten-year trends. There are also no base lines established to measure this. Where available, studies have been largely sporadic, driven by the research interests of researchers from the University of Eswatini.
- The status of fish stocks in Eswatini is not known due to the absence of relevant data. The country has no specific ex-situ conservation or management activities or programmes for associated biodiversity. Researchers mainly within the University of Eswatini collect specimens of insects for research purposes but the country has no established culture collections or similar initiatives.
- Budgetary constraints prevent the establishment of the National Botanical Garden and inadequate human capacity to support molecular characterization of the country's genetic resources across all sectors.
- The is no overarching legislative framework mandating conservation of plant genetic resources
- There is fragmentation of genetic resources management which is current under different institutions such the MoTEA (Forestry), MoA (NPGRC) and Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (EIRMP).
- The NPGRC has limited human resource making it difficult to deliver on their work hence the need for increased personnel.
- Indigenous chicken's multiplication centre established for local communities are no longer functional.
- Lack of trained personnel to run the National Tree Seed Centre.

13.2 Measure taken.

Develop and implement a genetic diversity strategy, implement the Biosafety Act 2012 and its provisions and develop guidelines for on-farm conservation areas

Target 13: By 2022, the genetic diversity of cultivated plants and domesticated animals and their wild relatives, including other socio-economically as well as culturally valuable species, in Eswatini, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Biosafety Act, 2012 Section 25 specifically deals with Public Information, Awareness and Participation. Furthermore, Eswatini Biosafety Strategy (2014-2018) and the biosafety inspection manuals and checklists have been developed.
- Permit to conduct genetically modified (GM) cotton demonstrations in three regions of Eswatini have been granted to cotton board and private farmers in compliance with the guidelines for GM cotton production. The monitoring of imports of genetically modified maize for food, feed & processing is conducted.

- Other initiatives promoting sustenance of livestock biodiversity include the development of native species products value chains such as the promotion of indigenous cattle dairying through forming milk collection centres in communities in Lubombo and promotion of Dairy goat production training for farmers.

- The Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (EIRMIP) promotes the commercialisation of Swazi indigenous vegetables such as *jute mallo* (ligusha) and Amaranthus (imbuya).

Relevant websites, web links and files

http://www.uniswa.sz/centresinst/sirmip

Obstacles and scientific and technical needs related to the measure taken:

- The Plant genetic resources sector established a multi-stakeholder coordinating committee i.e. the National Plant Genetic Resources Committee (NPGR Com) but functioning of this committee is limited by the lack of funding. Another limitation is the lack of / inadequate representation of wild relatives, weedy and vegetative propagated species in the national collection.
- There is a siloed approach in the conservation of plant genetic resources e.g. forestry, MoA, EIRMP & ENTC

14.1 Measure taken.

Assess linkages between key ecosystem services and human well-being. Raise awareness and understanding of the public and decision-makers and restore to maintain the functioning of freshwater ecosystems such as wetlands

Target 14: By 2022, Eswatini's ecosystems that provide essential services are restored and safeguarded considering the needs of women and children, local communities and those of the poor and vulnerable.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Under different projects and programmes of biodiversity implemented by multiple stakeholders' the communities and decision makers are capacitated on the values of ecosystems and their importance in sustainable management as means to instil behaviour change so to optimize their conservation.
- ENTC with other key stakeholders prepare the celebrations of the world wetlands day commemoration.

- There are projects funded under the National Environment Fund on wetland restoration and rehabilitation.

- Forestry private companies do conduct open areas grass assessments as required by the forest stewardship council (FSC). There are several wetlands protection and restoration projects done under the environment fund.
- The process of identifying preferred sport fishing zones where sport fishing could be undertaken without directly prejudicing the rights of subsistence fishers was done.

- Annually, vulnerability assessments and analysis reports are generated, and these assess mainly two ecosystems namely the grasslands that are used as rangelands for livestock and the aquatic bodies' water levels. Hot spot areas to the incidents of army worm threats are also assessed for their state to check on indicators of threat. Vulnerability and Adaptation assessment for the biodiversity and ecosystems sector in Eswatini of 2014 assessed all ecosystems and based on a comparison of the threatened status and protection levels of each of Eswatini's five ecosystems, the following are most vulnerable to land-use change:
    - **High priority:** Grassland and Forest (critically endangered and with very low protected area representation)
    - **Second priority:** Lebombo and Sour bushveld (endangered and with low protected area representation)
    - **Third priority:** Lowveld bushveld (vulnerable and with moderately well protected area representation).

  Based on an assessment of the spatial shift of the optimum climatic conditions for Eswatini ecosystems under climate change effects and all representative of unconstrained emission scenarios, the following biomes are most vulnerable to climate change:
    - **Most threatened:** Grassland and Forest– under all climate scenarios, with large portions of the biome prone to replacement by savannah (particularly sour bushveld) and potential encroachment by forest vegetation. Forest projected to retract from the Lowveld significantly possibly as a result of increased fire and especially due to reduced rainfall.
    - **Second most threatened:** Lebombo bushveld – under all climate scenarios with savannah and desert vegetation projected to expand into large portions of the current biome.
    - **Third most threatened:** Lowveld and Sour bushveld (the sour bushveld prone to replacement by Lowveld bushveld vegetation).

- A national assessment of 2017 on earth dams constructed in the country showed that 72 were built by government in collaboration with other partners and 15 were built through European union assistance. Restoration of river systems and wetland areas has been achieved through ongoing construction of medium-size earth dams (including through rainwater harvesting) with considerable benefits for agriculture, aquaculture and other ecosystem services. The country ratified the Ramsar Convention on Wetlands and the Conservation of Migratory Species of Wild Animals both of which are viewed by local conservationists as critical to the protection and management of Eswatini's threatened biodiversity. The Convention on Wetlands came into force for Eswatini on 15 June 2013. Eswatini presently has 3 sites designated as Wetlands of International Importance. These are: Hawane Nature Reserve and Dam designated on the 15/02/13, located in the Hhohho Region and its Ramsar Site no. 2121; Sand River designated on the 15/02/13, located in the Lubombo Region and its Ramsar Site no. 2122 and the Van Eck designated on the 15/02/13, located in the Lubombo Region and its Ramsar Site no. 2123.

Relevant websites, web links and files

http://www.sea.org.sz/contents.asp?tid=13

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

14.2 Measure taken.

Build on natural resources management programmes, strengthen inter-sectoral mainstreaming on biodiversity and the evaluation of impacts of infrastructure on biodiversity and ecosystem functioning (EIA process).

Target 14: By 2022, Eswatini's ecosystems that provide essential services are restored and safeguarded considering the needs of women and children, local communities and those of the poor and vulnerable.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

■ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The Water Act, 2003, has setup River Basin Authorities (5) and Irrigation Districts where the personnel employed must carry out water use surveys to update the water use registry within the 5 river basins, they have to develop and enforce water quality standards amongst other responsibilities.

- Among other biodiversity management initiatives, the Chiefdom Development Plans which are under the Ministry of Tinkhundla and administration custodian are facilitated by different sectors for the various sustainable development planning such as the Energy, Security, Industry, Health, Agriculture, Environment.

- The Environment Management Act, 2002 aims to provide and promote enhancement, protection and conservation of the environment and the sustainable management of natural resources and to promote sustainable use of natural resources such as land and water considering the consequences for the present and future generations.

- The Environmental Audit Assessment and Review Regulations, 2000 require projects that have the potential to cause significant harm to the environment to undertake an environmental impact assessment (what is done to implement EIA) and comprehensive mitigation plan which is submitted to EEA before getting approval to continue with implementation.

Obstacles and scientific and technical needs related to the measure taken:

- Budget mainstreaming in the Ministry of Public Works and Transport has limited integration of EA when constructing community roads. There are also competing conflicts between roads infrastructure development and households where water ways are close to homesteads.

- Poverty creates conflict in the implementation of CDPs and leads to challenges in implementing their plans.

- Limited follow-ups on mitigation plans in development projects.

- Inadequacy in the environmental assessment regulations.

15.1 Measure taken.

Promote urban greening programmes, manage wetland ecosystems for carbon sequestration, increase and maintain carbon stocks in the country

Target 15: By 2022, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced in Eswatini, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The National Climate Change Strategy, 2016 has initiatives on urban greening.

- Biome areas well managed under PAs is estimated in relation to country surface area and are as follows
  - **Forest area**: is estimated at about 0.19%
  - **Savannah area**: is about 5.7%
  - **Grassland area**: is about 0.85%
  - **Aquatic area:** is about 0.005%

- The forestry industry contribution towards the preservation and improvement of forestry resources to contribute to the carbon cycle, is through sustainable managed exotic species of trees by generally ensuring that 75 percent of the plantation area is covered by trees.

- Degradation caused by exotic species in PAs such as *Chromolaena odorata, Lantana camara*, *Solanum mauritianum, Acacia spp* (black wattle) and *Eucalyptus spp* are controlled through sustainable and integrated approaches that rehabilitee biomes that are found in management areas.

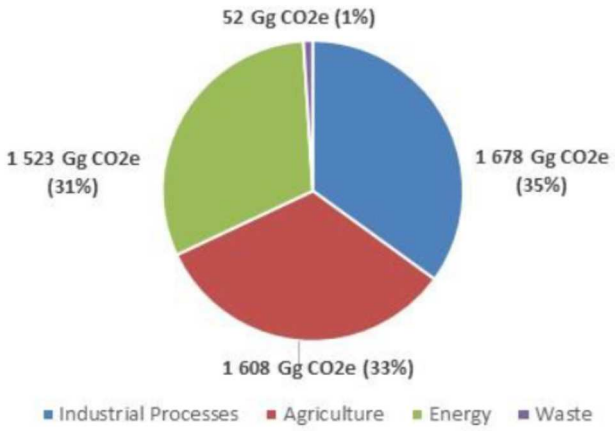
- The country is a net sink of GHG emissions. This means that while Eswatini emitted 4,861 Gg CO2e, the country's natural flora and farmed areas in the land use, land use change and forestry sectors sequestered emissions by 5,863 Gg CO2e, resulting in a net sink status of -1,002 Gg CO2e.

- Urban area carbon sinks include parks which are found in town/cities and in estate towns. Urban areas have increased carbon sinks through planting of indigenous trees in a bid to increase animal pathways.

- Town plans are developed and updated

Other relevant information

Figure 19: Eswatini Green House Gas Emissions



(**Source:** TNC, 2016)

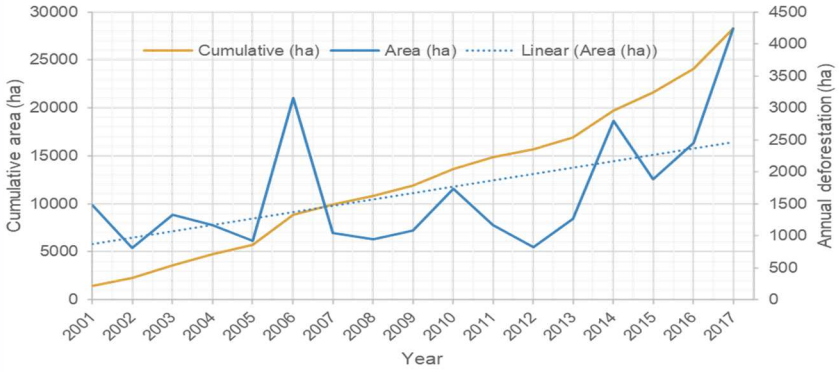
Obstacles and scientific and technical needs related to the measure taken:

- Poverty and inadequate means for alternative income generation initiatives leads to high indigenous tree deforestation (Traditional biomass) for energy consumption in the country. This therefore is not necessarily the best practice.
- The open space system is not yet integrated in the country's town planning as protected buffers.

Relevant websites, web links and files

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Figure 20: Cumulative Annual Deforestation Area



(Source: Dlamini W., 2018)

15.2 Measure taken.

Streamlining agricultural activities, urban and rural settlements to minimize GHGs and develop an integrated fire management strategy

Target 15: By 2022, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced in Eswatini, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Climate smart agriculture technology promotes principles and practices of sustainable land management such as conservation agriculture and rangeland management. Farmers are trained on a number of adaptation and mitigation strategies to combat the effects of climate change and overstocking where farmers are encouraged to reduce stocking rates via dip tank points of sale and markets for export. Between the year 2014 - 2018 about 60,000 fruit tree seedlings have been procured and given or sold to farmers in a bid to promote agroforestry practices.

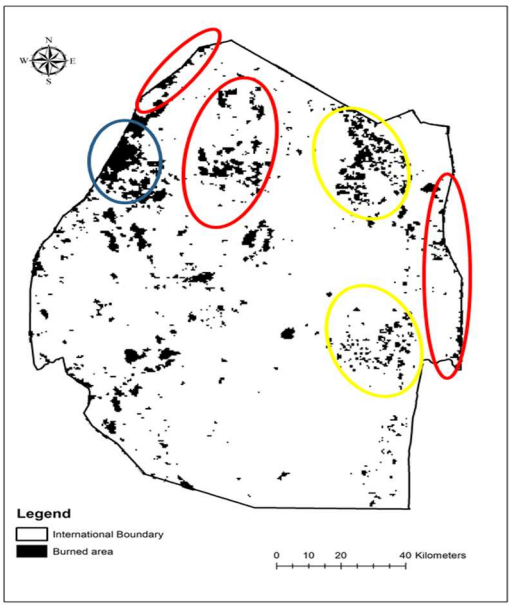
- A draft firefighting management strategy is in place through the assistance of FAO. 12 Tinkhundla Constituencies found along fire hot spots were trained on fire management and their capacity building was on site planning, detection, communication, accessibility, prevention, protective clothing, firefighting techniques and use of equipment and the science of fire. Stakeholders included Forest Plantations, Eswatini Government, Community Chiefdoms. Notable, among many factors this capacity building resulted in a positive decrease in the total area burnt which was reduced by 53.9% in 2017 when compared with 2014 and increase slightly by 13.2% when compared to 2016.

- A national adaptation readiness process was conducted which was funded by the GCF which aimed to help the country assess ways on how to mainstream adaption in various sectors.

Relevant websites, web links and files

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Figure 21: Hot Spots of Different Sources of Fire Incidents



Key:
Dagga fires
Poaching fires
Sugarcane burning:

(Source: Dlamini W., 2018)

Obstacles and scientific and technical needs related to the measure taken:

- There are issues in the land tenure system in the absence of the land policy

16.1 Measure taken.

Facilitate accession to the Nagoya Protocol, create awareness, put in place national regulatory framework, and establish institutional arrangements for the ABS Act

Target 16: By 2016, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational in Eswatini, consistent with national legislation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The ESwatini Environment Authority (EEA) in collaboration with the Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (EIRMP), University of ESwatini (UNESWA) hosted a one-day seminar on the regulation of traditional medicine in Eswatini. The seminar was held in September 2018 at UNESWA. The main purpose of the seminar was to raise awareness among key stakeholders in the country on the current regulatory frameworks governing the use of traditional medicines and medicinal plants, with the view towards sustainable utilisation of medicinal plants and a fair

and equitable sharing of benefits arising from the use of these plant genetic resources and traditional knowledge associated with it. The objectives of the seminar were to:

- Sensitize stakeholders on the current legislation on Traditional Medicine in Eswatini and identify gaps.
- Identify key role-players for the regulation of Traditional Medicine in Eswatini.
- Lobby policy makers to address existing gaps in the legislation.
- Sensitise stakeholders on the Nagoya Protocol on Access and Benefit Sharing (ABS) and the ABS administrative guidelines

- The ABS Guidelines (2018) are in place and being implemented in compliance with the Nagoya Protocol.
- Chiefs were capacitated on ABS and biodiversity issues around 2013.

Relevant websites, web links and files

https://www.cbd.int/reports/search/?country=sz
https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

16.2 Measure taken.

Strengthen the existing flora gene bank, the capacity of research institutions, and communities value addition capacity on products derived from genetic resources

Target 16: By 2016, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational in Eswatini, consistent with national legislation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been ineffective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The National Plant Genetic Resources Centre (NPGRC), located at Malkerns currently has 712 accessions representing 30 species. The exercise of collecting wild species propagation material has been done for species such as tomatoes and accessions of vines, cassava, maize and pigeon pea have been planted.

- The micro finance unit (MFU) and UNESWA have had a cooperation on a research study on the comparative response of various strains of indigenous chickens to low cost diets. Also, EIRMP at UNESWA conducts scientific research on the conservation status of medicinal and indigenous food plants and currently developing protocols for propagating indigenous medicinal plants to relieve pressure on wild populations. Furthermore, the institution conducts research on the distribution, ecology and conservation status of poorly documented plant species, particularly, endemic plants and documentation of knowledge on the ethnobotanical values of our plants is being done.

- Numerous value chains aimed at utilizing indigenous genetic material have been conducted and training workshops done, these include the indigenous chicken production seminars/field days that lead to flea markets that are held in various towns of the country which bring buyers and seller together. On another note, an indigenous chicken multiplication unit has been built at Khubuta. Other commodity commercial training workshops include goat production, fisheries management. The bean value chain has been

developed through a workshop held by Southern African Bean Research Network (SABRN), while that of sweet potato bread and other confectionary products has been developed and farmers supply a women's cooperative that supplies finished products to retailers.

Relevant websites, web links and files

http://www.gov.sz/nw17/index.php/ministries-departments/ministry-of-agriculture/agricultural-research/80-agriculture/agriculture/732-national-plant-genetic-resource

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

17.1 Measure taken.

Present NBSAP 2 document to decision-makers for adoption as a policy instrument

Target 17: By 2016, Eswatini has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The NBSAP 2 was endorsed by government in 2016. National development plans are expected to mainstream the NBSAP 2.

Relevant websites, web links and files

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

18.1 Measure taken.

Incorporate Traditional Knowledge (TK) and practises in environmental education, harmonise TK with scientific knowledge in conservation, document traditional knowledge and develop legislation to protect TK

Target 18: By 2022, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity are documented, respected and integrated into national conservation strategies.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- At national context, awareness activities are conducted by EIRMP for traditional healers on the conservation and use of forest genetic resources in the country (i.e sustainable utilisation) and more efforts are made towards the conservation of threatened species such as the widely used medicinal plant,

Warburgia salutaris (Sibhaha). Capacity building for traditional healers also looks at the legal status of traditional medicine in the country. Indigenous knowledge on medicinal and food uses of indigenous plants is documented and the traditional knowledge helps in historical knowledge, identifies cultural important and indigenous species for management.

- Education for sustainable development by EEA and ENTC has been conducted around 2012.
- Traditional Healers have developed their constitution for their consortium.

- Ethno-botanical surveys are done to determine Ethno-botanical uses, where markets and traditional healers selling traditional medicine are consulted to list different plant species commonly used for medicine and rituals. Research documents are generated on traditional medicine and natural plants used as food, which are then studied on how they can be sustainable preserved. Research is ongoing on the use of plant material to develop a plant-derived pharmaceutical drugs or commercially acceptable product. Studies on the propagation of the threatened species are done.

- Eswatini is a member of ARIPO (African Regional Intellectual property Organisation) and is in a positive step towards protecting indigenous knowledge through the Eswatini Intellectual Property and Patent Bill that has passed in to law as the Intellectual Property Tribunal Act of 2018, which seeks to establish a decision-making body.

- The cultural directorate at ENTC does outreach for school groups, communities, cultural events (Ummemo, Maganu ceremonies). This is done through the existence of cultural villages.

Obstacles and scientific and technical needs related to the measure taken:

- The documentation of IK is limited in the country.
- There is no harmony on the legality of traditional medicine use
- IP issues have various departments regulating it which creates confusion (Commerce, Ministry ICT).
- The implicit bias towards traditional healers is based on beliefs and hearsays limiting their participation in sharing IK.
- The increase in cultural and religious diversity diluted traditional ways of life and believes (Modernisation).
- Our traditional knowledge is based on generational passed down information through the word of mouth. No appropriate archiving system that exist for traditional knowledge.

19.1 Measure taken.

Collect data and information on biodiversity, mobilize resources to support research programmes, collaborate with tertiary and research institutions

Target 19: By 2022, the knowledge, science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied in Eswatini.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- A biological museum has been established within the UNESWA as efforts of the department of Biological Sciences. The museum has been allocated space now where collections are kept, and full capacity of the museum will commerce once the recruitment of the curator has been done.
- The has been a few companies and public parastatals that have financed postgraduate and undergraduate student study programmes relating to biodiversity through the UNESWA foundation.
- The Department of Biological Sciences of the Faculty of Science & Engineering at the University of Eswatini established a Master of Science Degree programme in Ecology & Biodiversity Conservation that begun in 2013. The key objectives are to develop human resources both nationally and regionally in the field of ecology and biodiversity conservation, and to provide a framework for sustainable biodiversity management and utilisation through scientific research and experimentation.
- Research and development on herbal medicines is done by the Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants, at the University of Eswatini, Kwaluseni, campus which could lead to novel pharmaceutical products and mechanisms for monitoring the claims for efficacy and safety of products from traditional medical practice.
- ENTC conducts ecological research and monitoring within its Nature Reserves and collate studies done around the country.
- UNESWA collates research projects done by student under the library website.
- EEA collating EIA, Environmental laws, pollution, waste management within their resource centre.

Relevant websites, web links and files

http://www.uniswafoundation.org.sz/media/archives/2010/2.php

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- No adequate collating of data at national level.

19.2 Measure taken.

Develop and manage a national biodiversity clearing house, make existing data accessible to wider stakeholders and develop a biodiversity coordinating unit to harness synergies

Target 19: By 2022, the knowledge, science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied in Eswatini.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- The coordination unit for most biodiversity related conventions have been placed under the Environment Department established in the Ministry of Tourism and Environmental Affairs.
- The biodiversity portal has been approved by the national stakeholders. Data to populate the database unit continues to be collected and updated from the national stakeholders. This portal will supplement the existing database on the main SNTC website.
- The EEA has a clearing house platform in its website where biodiversity related articles can be accessed.

Relevant websites, web links and files

www.swazibiodiversity.com

https://www.cbd.int/doc/world/sz/sz-nbsap-v2-en.pdf

Obstacles and scientific and technical needs related to the measure taken:

- There is limited capacity of managing clearing house,
- The is a challenge in the transition of policy development from the Agency (EEA) to the Ministry (MoTEA)

20.1 Measure taken.

Advocate for biodiversity to policy makers, and for budgetary allocations in national planning, and expand regional and international partnerships for resource mobilization to implement the NBSAP 2.

Target 20: By 2016 the NBSAP is fully integrated into the government's and implementing institutions' budgeting systems and alternative sources of funding are mobilized.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

 Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

- Policy makers are involved during the reporting exercise launches and the portfolio committee in parliament get quarterly reports which reports on the progress made in the implementation of biodiversity related projects and their importance to the nation at large. To influence budgetary allocations the MoEPD is a key stakeholder that has to be represented in the steering committees of biodiversity related projects and they are invited during stakeholder workshops where their capacity is built on the importance of biodiversity so to make the ministry appreciate the need for budgetary mainstreaming.

- The country is assisted to implement NBSAP 2 through external funding.

Section III. Assessment of progress towards each national target

III. Assessment of progress towards each national target

Target 1: By 2022, more than 70% of Eswatini Nationals will be cognizant of biodiversity and ecosystems, their value and the steps they can take to conserve and use these sustainably

Category of progress towards the implementation of the selected target

 On track to exceed target

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and are summarized as follows:

- The government of Eswatini continues to build capacity for civil servants based on the training plan of the relevant Ministry's and Departments working on issues relating to biodiversity.
- Multiple radio programmes are aired and publications made in print media on topics relating to biodiversity conservation and management for the general public.
- The National Environmental Education Programme (NEEP) is an awareness initiative that incorporates and updates topics relating to biodiversity management at ENTC.
- The national curriculum centre (NCC) has integrated biodiversity related topics into school curriculum in subjects such as Science, Agriculture, Social Studies, Practical Arts, Geography, Development studies from Grade 1 to Form 5.
- In tertiary education, undergraduate and post graduate programmes have been reviewed and upgraded to include biodiversity-related courses.

Indicators used in this assessment

Indicators used in this target are:

- Baseline information on biodiversity awareness within target groups.
- Biodiversity and Ecosystem management issues mainstreamed into the curricula.
- Integrated environmental awareness and communication strategy developed.
- Collaborative activities with ecotourism community initiatives.

Please describe any other tools or means used for assessing progress

- Compiled reports from stakeholder's awareness campaigns.
- Outputs from stakeholder consultations through interviews and questionnaires.

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The has been a gap in collating data information from the different stakeholders which individually keep their reports and records. The newly established Environmental Department in the Ministry of Tourism is still in the process of being capacitated to fully coordinate the implementation of the NBSAP 2.

Relevant websites, web links and files

http://www.gov.sz/images/stories/edupolicies/NCC%20Performance%20Report%20DEC.%202010.pdf

Target 2: By 2022, biodiversity values have been integrated into all national, regional, municipal and rural development and poverty reduction strategies and planning processes and are being incorporated into accounting and reporting systems.

Category of progress towards the implementation of the selected target

■ On track to achieve target

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and are summarized as follows:

- The National Development Strategy (NDS) Vision 2022 incorporates broad strategies of environmental objectives.
- The Poverty Reduction Strategy and Action Plan (PRSAP) recognizes environmental management as pivotal in increasing agricultural production. Furthermore, it acknowledges that the underprivileged depend on the environment and natural resources for their survival.
- The Strategy for Sustainable Development and Inclusive Growth (SSDIG) has environmental sustainability as one of the thematic areas.
- The state of the environment report of (SOER) 2012 is a national ecosystem assessment.
- The Eswatini national annual vulnerability assessment and analysis report is an annual evaluation.
- The Forest Resource Assessment 2015 report is an assessment of the forest ecosystems.

Indicators used in this assessment

Indicators used in this assessment are:

- Important ecosystem services identified.
- Biodiversity priorities mainstreamed into the NDS and Poverty Reduction Strategy and Vision 2022.
- Ecosystem values integrated in all sectors and strategy documents.

Please describe any other tools or means used for assessing progress

- Reports of assessments
- Outputs of strategies

Relevant websites, web links and files

http://www.gov.sz/

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

There is a week monitoring of ecosystem e.g. the state of the environment report is supposed to be generated biannually but that is not the case. There is a dire need to initiate resource accounting or the economics of ecosystems and biodiversity to give value of ecosystems worth. A limitation to this is due to limited technical capacity in resource accounting and poor coordination of biodiversity related stakeholder sees the country having very old baselines that were collected more than 17 years ago.

Relevant websites, web links and files

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.575.6847&rep=rep1&type=pdf

Target 3: By 2020, positive incentives that benefit biodiversity are encouraged, while harmful incentives, including subsidies, are eliminated or reformed.

Category of progress towards the implementation of the selected target

■ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and are summarized as follows:

- A forest fire management case study revealed that 29% of the forest fires are caused by arson due to honey hunters.
- The farm inputs subsidy and free services incentives have increased good agricultural practice in the country in livestock and crop production.
- The plastic bags survey has informed the drafting of Plastic Regulations, and the proposed levy is to increase consumers responsibility of not disposing plastic but and environmentally friendly use and disposal.

Indicators used in this assessment

Indicators used in this assessment are:

- Trends on the assessments undertaken (reports produced).
- Number of incentives in place.
- Reduction of harmful subsidies.

Please describe any other tools or means used for assessing progress

- Stakeholder consultation through case studies
- Incident reports
- Experts observations

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The key stakeholders have their project management plans and monitoring, and evaluation systems and the coordinating Ministry is supposed to collate all progress reports to make evaluation on progress made per indicative activity of each target.

Target 4: By 2022, the Government of Eswatini, municipalities, businesses, local communities and stakeholders at all levels have developed and are implementing plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and are summarized as follows:

- At a small scale the mainstreaming of Chiefdom Development Planning (CDP) framework for communities by multiple sectors has begun.
- There is mainstreaming of biodiversity management into municipality areas through the Spatial Planning Framework as per the requirements of the Town Planning Act, 1961.
- The mainstreaming of environmental impact assessment and the submission of comprehensive mitigation plans for development that falls under Category 2 and 3.
- The up-scaling efforts in the implementation of the climate smart agriculture aims to increase resilience to climate change.
- The promotion of wood-saving stoves pilot project which aimed at reducing pressure on forests which are deforested for fuel firewood.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Integrated sustainable development plans at all levels have a biodiversity component
- New and existing businesses have gone through the EA process.
- Land use practises more sustainable.
- Sustainable utilization of natural resources.
- Positive impacts of production and utilization of natural resources enhanced, and negative impacts mitigated.

Please describe any other tools or means used for assessing progress

- Desk studies have been conducted to collate information from different unanalysed data
- Stakeholder consultations through interviews and questionnaires.

Relevant websites, web links and files

http://www.sea.org.sz/pages.asp?pid=14

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Target 5: By 2022, the rate of loss, degradation and fragmentation of all Eswatini's natural habitats is at least halved and where feasible brought close to zero.

Category of progress towards the implementation of the selected target

 Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and are summarized as follows:

- A National Development Data Centre (NDDC) for geospatial information system (GIS) was established to promote effective national planning.
- Veld and forest fires monitoring is done using MODIS data in GIS which is housed at the Eswatini National Trust Commission (ENTC).
- Land use change is a major threat to indigenous plants in the country.
- The major threats to aquatic biome are climate change and demand for industrial and domestic water.
- The gazetted river basin authorities are to enforce the Public Stream Banks Regulation of the Natural Resources Management Act of 1951.
- Marginal efforts on donga rehabilitation, desilting and improving runoff water infiltration are done by multiple stakeholders' country wide.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Action plan to safeguard ecosystems
- Ecosystem-based adaptation strategies put in place.
- Restored and rehabilitated natural habitats.

Please describe any other tools or means used for assessing progress

- Review of stakeholder's annual reports
- Consultations and survey questionnaires.
- Technical committee reviews.

Relevant websites, web links and files

https://www.jica.go.jp/project///eswatini/0604937/pdf/NddcNewsLetter_vol1.pdf

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The target is being monitored at stakeholder level and the gaps in nationally customised information reporting during monitoring exercises leaves gaps in useful information that could have been captured.

Target 6: By 2022 all of Eswatini's aquatic resources are sustainably managed.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- The National Water Authority (NWA) was established to overarch five river basin authorities in the country.
- The Eswatini National Trust Commission has mapped important wetlands of the country as per the Ramsar Convention.
- Sustainable fish farming initiatives are supported to reduce unlawful overharvesting in aquatic bodies.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Watershed management programmes in place.
- Mapped country's wetland as per the Ramsar Convention.
- Sustainable aquaculture widely practised.

Please describe any other tools or means used for assessing progress

- Progress reports of key stakeholders responsible with implementing certain targets
- Face to face and questionnaire consultations with key stakeholders.

Relevant websites, web links and files

http://iwrmdataportal.unepdhi.org/IWRMDataJsonService/Service1.svc/getNationalSubmissionFile/Swaziland

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The target is being monitored through the current statistics of awareness campaigns, fishing permits, aquatic water levels, random sampling for pollution, monitoring of illegal fishing and law enforcement through different roles done by different stakeholders.

Target 7: By 2022, all areas under agriculture, fisheries, aquaculture and forestry are managed sustainably, ensuring conservation of Eswatini's biodiversity.

Category of progress towards the implementation of the selected target

■ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- The introduction of the conservation agriculture technology and its adoption in the country.
- Formulated policies and those that are in the stage of formulation to enable the implementation of sustainable agriculture.
- The number of proposed Bills for enacting laws that will promote sustainable agricultural production.
- The promotion and management of conservation areas within agricultural enterprises.
- The adoption and implementation of best practices in food production systems.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- More eco-friendly food production technologies applied.
- Trends in climate smart agricultural production systems.
- Policies on sustainable agriculture, aquaculture and forestry in place.
- Conservation areas within agriculture and forestry plantations in place.

- Buffers vegetation along streams, riparian zones and wetlands established.

Please describe any other tools or means used for assessing progress

- Bilateral stakeholder consultations, workshop submissions and questionnaires.
- Desk study on the annual and project reports of the relevant stakeholders.

Relevant websites, web links and files

https://www.fanrpan.org/publication/fanrpan-climate-smart-agriculture-policy-briefs-swaziland

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Monitoring is done through audits of systems within each sector and reports are availed for stakeholders a limitation is on the collating of reports from all sectors.

Target 8: By 2022, Pollution in Eswatini has been brought to levels that are not detrimental to ecosystem function and Biodiversity.

Category of progress towards the implementation of the selected target

■ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Gap analysis on the Water Pollution Control Regulations, 2010
- Capacity building on pollution prevention enforcement done by the Eswatini Environment Authority (EEA).
- The Control of Plastic Regulations, 2015 draft still undergoing reviews.

- The Hazardous Waste Regulations are being developed.
- The enactment of the Pesticides Management Act of 2017.
- Periodical monitoring of river water pollution at different locations.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Trends in pollution levels.
- The number and capacity of staff and equipment used in pollution control institutions.
- Report(s) on gap analysis
- Pollution control legislations amended and or developed.
- Increased awareness on pollution prevention and control.

Please describe any other tools or means used for assessing progress

- Consultative meetings and workshops.
- Review of case study reports.
- Annual reports of key stakeholders.

Relevant websites, web links and files

https://www.elaw.org/content/swaziland-water-pollution-control-regulations

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

This target is being monitored through the policies and Bills submitted to Cabinet and Parliament for enacting laws and regulations for effective enforcement. Furthermore, the delineation of hot spots allows more vigilance in such areas.

Target 9: By 2022, invasive species that are alien to Eswatini and their pathways are identified and prioritized; priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Category of progress towards the implementation of the selected target

 Moving away from target

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- The national Survey and Mapping of invasive alien plants species (IAPS) Report of 2010.
- The phytosanitary system for early detection and surveillance of IAPs.
- Identification of pathways of IAPs.
- Multi-stakeholder's awareness campaigns for IAPs control.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Trends in invasive alien species monitoring.
- General populace aware and able to identify, control and manage IAPs.
- Inventory of invasive alien animal species.

Please describe any other tools or means used for assessing progress

- Consultative workshops for communities and experts to gather their opinions.
- Community leaders and experts from various stakeholders given questionnaires.
- Case study reports and institutions annual reports.
- Review websites of some stake holders.

Relevant websites, web links and files

https://www.youtube.com/watch?v=_HS0T07_aag

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

In protected areas spot checks and spatial technologies are employed to monitor IAPs spread trends. In private plantations and farms inventories are also employed to detect infestations. Nationally, a survey was done 19 years ago, and data gaps exist now.

Target 10: By 2022 pressures on Eswatini's vulnerable and most valuable ecosystems such as (Savannah woodland Mosaic forests and wetlands) are identified and prioritized; priority pressures are controlled or eradicated.

Category of progress towards the implementation of the selected target

☐ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Identification of the most vulnerable and valuable ecosystems.
- Annually rangelands are monitored through the vulnerability assessment exercise.
- A systemic legislation and policy response.
- Promotion of community development plans.
- A baseline study for strengthening the national Protected Areas (PAs) System of Eswatini conducted.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Vulnerable and valuable ecosystems identified.
- Appropriate control and management measures in place and implemented.

Please describe any other tools or means used for assessing progress

- Review of the state of the environment report.
- Reports from stakeholder on their implementation status.
- Consultative workshops and questionnaires.

Relevant websites, web links and files

http://sntc.org.sz/documents/EswatiniBiodiversityPortalOperationManual.pdf

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate.

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The Eswatini Environmental Authority is supposed to biannually conduct the state of the environment assessment where the trends in degradation of ecosystems must be monitored. The office of Surveyor General generates spatial maps showing the actual ecosystems change and degradation.

Target 11: By 2022, at least 10 per cent of Eswatini's land area, especially areas of particular importance for biodiversity and ecosystem services, protected landscapes and multiple resource use areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas.

Category of progress towards the implementation of the selected target

 On track to achieve target

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Field-based assessment of the Eswatini's Protection Worthy Areas (PWAs).
- Review of the existing laws for protected areas.
- Community based natural resources management.
- Sustainable Land Administration and Management project.
- Conservation area and Eco-tourism infrastructure.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Total area of Protection worthy sites identified.
- Priority list of PWAs for conservation.
- Traditional Authorities more actively involved in biodiversity management.
- Measures in place to incentivise landowners involved in conservation to continue with their programmes.
- Number of capacity building programmes developed.
- Number of operational landscape-based management plans.

Please describe any other tools or means used for assessing progress

- Case study reports.
- Lead agency annual reports.

- Community leader's consultation workshop.

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Project progress reports, presentations from lead agencies that are assigned to implement specific strategic initiatives under the NBSAP and reports on the implementation status with lead agencies.

Target 12: By 2022, the extinction of species known to be threatened in Eswatini has been prevented and their conservation status, particularly of those that are endemic and those most in decline, has been improved and sustained.

Category of progress towards the implementation of the selected target

■ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- National projects surveys on threatened species.
- Focal stakeholders' websites publishing red list species.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Updated Red Data Lists.
- Improved conservation status of critical ecosystems in multiple land use areas.
- PA management strengthened especially for habitats of threatened species.
- Communities more actively involved in PAs

Please describe any other tools or means used for assessing progress

- Case study reports on PAs
- Annual reports on form focal stakeholders.

Relevant websites, web links and files

https://www.nationalredlist.org/the-red-list-of-mammals-of-south-africa-swaziland-and-lesotho-2016/

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Monitoring of this target is through the PA strengthening project reports and assessment is based on national targets.

Target 13: By 2022, the genetic diversity of cultivated plants, farmed and domesticated animals and their wild relatives, including other socio-economically as well as culturally valuable species, in Eswatini, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Category of progress towards the implementation of the selected target

■ Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- The national genetic resources assessment done.
- The implementation of the Biosafety Act, 2012.
- Promotion of the commercialisation of Swazi indigenous vegetables.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Reports on accession numbers of the country's genetic diversity of crops, livestock and their wild relatives
- DNA and/or germplasm of crop plants, livestock and their wild relatives safely and securely stored.
- Biodiversity used in food and medicine maintained and safeguarded.
- Cautious and controlled use of living modified organisms.
- On-farm conservation areas established.

Please describe any other tools or means used for assessing progress

- Review of ministries reports on legislations
- Annual reports of stakeholders on operations
- Consultations through questionnaires and face to face

Relevant websites, web links and files

http://www.gov.sz/index.php?option=com_content&view=article&catid=80:agriculture&id=732:national-plant-genetic-resource

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Actual monitoring is done by the respective institutions and NBSAP 2 is only keeping track of overall implementation.

Target 14: By 2022, the capacity of ecosystems to deliver essential services and support the livelihood of the people of Eswatini is maintained.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Annual vulnerability assessments and analysis reports.
- National Assessment of earth dams constructed.
- The environmental impact assessment.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Trends in of participation of all key sectors in environmental management issues.
- Biodiversity inclusive environmental assessments.
- Policies plans and programmes across all sectors incorporating ecosystem management.

Please describe any other tools or means used for assessing progress

- Desk study on public documents and institutions reports
- Annual reports from focal institutions
- Consultation workshops

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Annual institutional assessments on implementation progress to monitor and evaluate achievements towards biodiversity goals. Biome infrastructure assessment program.

Target 15: By 2022, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced in Eswatini, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Preservation and improvement of forestry resources.
- Eswatini is a net sink of GHG emissions.
- Promoting fruit tree production as carbon sink in climate smart agriculture.
- Firefighting management strategy.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Communities more involved in carbon stocks management.
- Percentage increase in carbon stocks.
- Improved management of wetlands and increase in carbon sequestered.
- Integrated fire management strategy.

Please describe any other tools or means used for assessing progress

- A review of the country's Third National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) was done.
- Face to face consultations
- Fire management strategy reports.

Relevant websites, web links and files

https://cdiac.ess-dive.lbl.gov/trends/emis/swa.html

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Eswatini's Third National Communication to the United Nations Framework Convention on Climate Change (UNFCCC).
- Records and monitoring through the MODIS data using a geographic information system (GIS).
- Baseline on strengthening national protected areas.

Target 16: By 2016, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and by 2022 fully operational and consistent with national legislation.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- The facilitation of the accession to the Nagoya Protocol.
- Sensitise stakeholders on the Nagoya Protocol on Access and Benefit Sharing (ABS) and the ABS administrative guidelines.
- The National Plant Genetic Resources Centre (NPGRC) accessions.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Accession to the Protocol.
- ABS Regulatory Framework in place.
- Value added products developed by communities.

Please describe any other tools or means used for assessing progress

- Stakeholder consultations.
- Review of stakeholder reports.

Relevant websites, web links and files

https://www.cbd.int/countries/nfp/?country=sz

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Assessment/review of annual reports, baseline studies, routine assessments compiled by stakeholders (Government, Private sector, development partners and NGOs) and results of national monitoring systems found in some stakeholders are the bases of comprehensive evidence that is used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Annual review on progress made towards ABS implementation.
- Monitoring and Research activities on genetic resources.

Target 17: By 2016, Eswatini has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Category of progress towards the implementation of the selected target

 On track to exceed target

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Endorsement of NBSAP 2 as a policy document

Indicators used in this assessment

Indicator used for the assessment of this target is:

- NBSAP 2 adopted as a Policy instrument.

Please describe any other tools or means used for assessing progress

- Policy reviews

Relevant websites, web links and files

http://environment.readyhosting.com/biodiversity/index.php/nbsap-ii/

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

- Assessment was done on the implementation status of the strategic initiative.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Annual policy documents published on biodiversity from Ministries implementing Biodiversity initiatives.

Target 18: By 2022, the traditional knowledge, innovations and practices of local Swazi communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are documented, recognised and promoted.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Seminars for traditional healers on biodiversity conservation.
- Research on traditional medicine and food.
- Protecting indigenous knowledge.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Traditional Knowledge incorporated in educational and awareness campaigns.
- Established fora for exchange of information between indigenous communities and scientists.
- Legislation protecting Traditional knowledge.

Please describe any other tools or means used for assessing progress

- Reports of Eswatini Environment Authority (EEA) collaboration activities.
- Consultation via face to face and questionnaire.

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment is based on the periodical reporting of EEA and consultation feedbacks.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Annual assessment of traditional knowledge in relation to biodiversity and research outputs in addressing biodiversity loss.

Relevant websites, web links and files

https://www.separc.co.sz/2019/02/12/the-prospects-of-indigenous-knowledge-systems-iks-in-eswatini/

Target 19: By 2022, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied in Eswatini.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- A biological museum has been partially setup by UNESWA.
- Upgrading of post undergraduate and development of post graduate programmes at UNESWA incorporating biodiversity.
- Establishment of a national biodiversity portal.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Establishment of a Biodiversity Database.
- Research and tertiary institutions have multiple research programmes in biodiversity.
- A number of emerging scientists that are supported to study biodiversity programmes.
- A biodiversity coordination unit in place.

Please describe any other tools or means used for assessing progress

- Desk study on projects outputs.
- Annual reports of key stakeholders.
- Face to face consultations.

Relevant websites, web links and files

http://www.uniswa.sz/research/urc

Level of confidence of the above assessment

■ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

- Annual reviews and updated lists and programmes.
- Review of scientific information on the UNESWA and ENTC websites.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Records and monitoring through the institution's websites.

Target 20: By 2020 the NBSAP is fully integrated in the government and relevant implementing institutions' budgeting systems and other sources of funding are mobilized.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

16 July 2019

Additional information

The main measures undertaken to implement and achieve the selected target were described in Section 2 and the main evidence used to assess progress is as follows:

- Advocate for biodiversity to policy makers.
- Resources mobilisation.

Indicators used in this assessment

Indicators used for the assessment of this target are:

- Increased awareness at all levels of the value of biodiversity and ecosystems.
- Budgetary allocation for biodiversity.
- Partnership agreements.

Please describe any other tools or means used for assessing progress

- Desk studies on financial years reports.
- Focal agencies report on project launches and training workshops.

Level of confidence of the above assessment

■ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

- Comparison and analysis of periodic reports was undertaken to ensure that comprehensive evidence was used to arrive at a conclusive assessment.

Adequacy of monitoring information to support assessment

■ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Budgetary records and monitoring of actual expenditures.
- Reports on workshops on capacity building initiatives.

Section IV. Description of the national contribution to the achievement of each global Aichi Biodiversity Target

IV. Description of national contribution to the achievement of each Aichi Biodiversity Target

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description.

Targets 1:

Great strides have been made by Eswatini to make citizens aware of the importance of biodiversity and its management, hence the carried awareness campaigns and mainstreaming are satisfactory. Poverty has made communities have less value on the protection of biodiversity, and the country still lacks the basic data on ecosystem services and biodiversity values.

Targets 2:

The country has adequately mainstreamed biodiversity into the key national development plans, poverty plans, and disaster management plans. The country limitations include inadequate assessment of policies to identify opportunities for addressing biodiversity concerns, lack of compilation of environmental statistics, environmental-economic accounts and this limits the integration of biodiversity into the national finance accounts. Furthermore, this deprives the country an opportunity to integrate biodiversity-related actions that can help alleviate poverty and support livelihoods.

Targets 3:

The country acknowledges positive reforms that are in livestock and farm inputs that increase good agricultural practice. Limited action has been done to enforce certification of commodities for local production, to identify

incentives for elimination, reforms, to identify the full economic, social and environmental costs of production aspects and subsidies.

Targets 4:

The country is in track with promoting land use planning that fosters sustainable production and the development of geospatial maps on areas that are critically important to maintain the safe ecological limits of productive systems e.g. PA or PWAs. Enforcement of the Air Pollution Control Regulations (2010) is done which requires the industry and other emitters to submit emission analysis results for monitoring by the Eswatini Environment Authority. At chiefdom level marginal effort has been done for the up-scaling of the development of sector-specific plans through chiefdom development plans (CDPs) for sustainable production and consumption. Poor data gathering to inform the establishment of indicators that can be used to track progress on the targets on sustainable production and consumption.

Targets 5:

Agricultural activities continue to be the driver of deforestation due to the marginal actions done to instil the promotion of intensified agricultural production and rangelands. There is limited support and enforcement for indigenous, local communities and the general public in reducing illegal and unplanned land use change. There is weak enforcement to prevent access to illegally produced products hence the need for more capacity to enforce laws relating to habitat protection and conservation. The country has no instrument to force handicraft corporate to commit in deforestation-free commodities or promote sustainable utilization of forests and be certified.

Targets 6:

The country's NBSAP includes actions on the fisheries sector and the fisheries habitats (aquatic bodies) are mapped and there are special maps too for protected wetland areas which are available. Challenges in this target include limited capacity to curb illegal fishing, limited adoption of innovative fisheries management systems and poor monitoring and enforcement of the regulations that prevent illegal harvesting. Lastly, promoting the up-scale of sustainable fish farming by in communities is done through encouraging fishponds is not effective to feed market demand of fish.

Targets 7:

Sustainable production through the certification process is slowly being introduced into small scale farmers as a mean for market access especially in the cash crops and livestock sector. A huge gap exists for vegetable producers for enforcing compliance towards certification due to market capacities and the are no regulations controlling value chains. The country's NBSAP does assess for geospatial use for sustainably managed agriculture, or forestry, where maps are generated showing how productive landscapes intersect with critical biodiversity areas.

Targets 8:

Assessment of protected worthy wetlands has been completed to ensure that the filtering of surface runoff water in the ecosystems is done to maintain water quality and a geospatial map has been generated for pollution hotspots. Progress has been made towards prevention of water pollution through sewer treatments and small initiatives towards reuse and recycle of plastics and the use biodegradable alternatives. The country has developed water and air quality guidelines and pollution concentration thresholds which are enforced by EEA. There is limited monitoring towards the improvement of nutrient use efficiency to reduce losses to the environment such as that of phosphates from detergents into water bodies.

Targets 9:

Stakeholders have adequately raised awareness on IAPs impacts, their identification and control methods. Some private farms have systems that are used to quickly detect and rapidly respond to species invasions while nationally it is not done due to capacity and the identified and prioritized IAS have no solid implementation plan for eradication or control. Additionally, the country has weak border controls to reduce IAS introductions.

Targets 10:

Projects aimed at maintaining sustainable livelihoods and food security in communities have been initiated to a limited extent to provide viable alternative livelihoods. The identification of ecosystems that are vulnerable to climate change has been done. To a limited extent measures to improve ecosystems resilience, and their monitoring for their effectiveness has been done.

Targets 11:

The targeted protected worthy areas (PWAs) in the country will create a network that will have a good ecologically representative area designated to protect rare, threatened and endangered species, so that they can be effectively managed. Geospatial analyses have been done on existing PAs and PWAs to maintain connectivity which will provide an adequate area for species movement and improve cooperation and involvement of indigenous and local communities in PA creation, control and management.

Targets 12:

The PWAs and existing PAs are a network that is representative of the prioritized biologically important sites, which contain threatened species. This aims to fill in the gaps that exist at the national, regional and global species conservation status assessments. No stringent measures are in place to curb habitat loss, degradation fragmentation and to restore degraded habitats. Habitat loss, poaching and climate change continues to be the main drivers of species extinction risks, and compound to create even more complex challenges.

Targets 13:

The threatened wild crop relatives at the small scale are increasingly being collected to improve ex-situ actions for genetic diversity. Similarly, limited actions are done to strengthen in-situ diverse farming practices that foster genetic diversity in livestock and they are not geospatially mapped. The role of indigenous and local communities and farmers in maintaining genetic diversity is recognized and is used in plant and animal breeding programs.

Targets 14:

Ecosystems that provide the country's most important services have been identified and limited efforts are undertaken to protect ecosystems that are vulnerable including those that reduce risks from disasters (wetlands). There is no satisfactory monitoring of the status of ecosystems that provide important ecosystem services because of limited actions to improve their resilience towards degradation e.g. rangelands, buffer zones of rivers.

Targets 15:

Land use mapping and planning approaches are used in the protection and restoration of native vegetation on vulnerable sites, and to increase ecological connectivity in PAs. In the forestry and agricultural plantations, the native vegetation area is normally designated. Degradation hot spots have been identified but limited action is seen towards restoration of the highly degraded ecosystems. There is limited up-scaling of the promotion of CDPs country wide which is currently mostly centralized around communities that fall within project areas that promote sustainable land use planning through the full participation of indigenous and local communities.

Targets 16:

The country has accession to the Nagoya Protocol to ensure full participation in the Protocol and it is implementing some requirements of the Nagoya Protocol by enacting legislation. The ABS Clearing-House to make national information available is housed at EEA.

Targets 17:

The NBSAP is a policy instrument that is recognized by the government which has national targets with corresponding measurable indicators. The review of progress to implement the NBSAP is done biannually to evaluate the effectiveness of measures with stakeholders.

Targets 18:

Traditional knowledge continues to decline, and it is being displaced at a large-scale. Processes are underway which recognise and safeguard the TK in some research initiatives conducted by Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (EIRMIP). The strengthening of protected areas project involves indigenous and local communities in the PA creation, control, governance and management.

Targets 19:

Limitations to this target relate to the coordination, monitoring of data collection and report compilation to assist inform decision making in conservation efforts. To bridge the gap in geospatial data, the use of the Surveyor Generals office to capacitate those requiring the service or skill is important. There is little effort done towards developing inventories of existing biodiversity information hence wide knowledge gaps exists because of outdated baselines. There is a huge need to invest in digitalized data collections and promote citizen scientists' contributions to portals.

Targets 20:

The national financial plan for biodiversity is incorporated within the NBSAP 2 and funding needs are identified. There exists a significant gap in the costs of achieving the Strategic Plan for Biodiversity 2011-2020 and the current funding is available to implement strategies and actions to achieve it.

Based on the description of your country's contributions to the achievement of the Aichi Biodiversity Targets, please describe how and to what extent these contributions support the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals.

National Targets 1:

- ***SDG 4.7*** states that by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.
- ***SDG 12.8*** states that by 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

National Targets 2:

- ***SDG 9.1*** says develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.
- ***SDG 11.3*** states that by 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.
- ***SDG 17.14*** says enhance policy coherence for sustainable development.

National Targets 3:

- ***SDG 15.9*** states that by 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.

National Targets 4:

- ***SDG 8.4*** says improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.

National Targets 5:

- ***SDG 15.1*** says by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.
- ***SDG 15.2*** says by 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
- ***SDG 15.3*** says by 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.
- ***SDG 15.5*** says take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

National Targets 6:

- ***SDG 12.2*** says by 2030, achieve the sustainable management and efficient use of natural resources.
- ***SDG 14.4*** says by 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

National Targets 7:

- ***SDG 1.5*** says by 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate- related extreme events and other economic, social and environmental shocks and disasters.
- ***SDG 2.4*** says by 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
- ***SDG 12.2*** says by 2030, achieve the sustainable management and efficient use of natural resources.
- ***SDG 15.1*** say by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

National Targets 8:

- ***SDG 6.3*** says that by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- ***SDG 9.4*** says by 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

- ***SDG 12.2*** says that by 2030, achieve the sustainable management and efficient use of natural resources

National Targets 9:

- ***SDG 15.8*** says that by 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species.

National Targets 10:

- ***SDG 13.1*** says strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

National Targets 11:

- ***SDG 6.6*** says by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- ***SDG 11.4*** says strengthen efforts to protect and safeguard the world's cultural and natural heritage.
- ***SDG 15.1*** states that by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.
- ***SDG 15.4*** states that by 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

National Targets 12:

- ***SDG 14.4*** states that by 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.
- ***SDG 15.5*** says take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

National Targets 13:

- ***SDG 2.5*** states that by 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

National Targets 14:

- ***SDG 1.5*** states that by 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate- related extreme events and other economic, social and environmental shocks and disasters.
- ***SDG 6.4*** says by 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

- ***SDG 6.5*** says by 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
- ***SDG 6.6*** says by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

National Targets 15:

- ***SDG 6.5*** says by 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
- ***SDG 6.6*** states that by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- ***SDG 15.1*** says by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.
- ***SDG 15.2*** says by 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
- ***SDG 15.3*** states that by 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

National Targets 16:

- ***SDG 15.6*** says promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.

National Targets 17:

- ***SDG 16.7*** says ensure responsive, inclusive, participatory and representative decision-making at all levels.
- ***SDG 17.9*** says enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.
- ***SDG 17.14*** says enhance policy coherence for sustainable development.

National Targets 18:

- ***SDG 2.5*** says that by 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

National Targets 19:

- ***SDG 4.7*** says by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

- ***SDG 12.8*** says by 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- ***SDG 17.7*** says promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.

National Targets 20:

- ***SDG 17.3*** Mobilize additional financial resources for developing countries from multiple sources.

Section V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation (completion of this section is optional)

V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation
Does your country have national targets related to the GSPC Targets? ■ No, there are no related national targets.
Please provide information on any active networks for plant conservation present in your country. None

Section VI. Additional information on the contribution of indigenous peoples and local communities (completion of this section is optional)

VI. Additional information on the contribution of indigenous peoples and local communities to the achievement of the Aichi Biodiversity Targets, if not captured in the sections above.

Please provide any additional information on the contribution of indigenous peoples and local communities to the achievement of the Aichi Biodiversity Targets, if not captured in the sections above.

National Target 4:

The development of Chiefdom Development Planning (CDP) is a participatory land-use planning process.

National Target 5:

The fire management implementation strategy involves communities and the National Environment Fund administered by EEA has been instrumental in some community ecosystems rehabilitations.

National Target 7:

Small scale farmers practice conservation agriculture and of these 54% are women.

National Target 9:

Communities are involved in the eradication of alien invasive plant species in different locations of the country.

National Target 11

Communities are involved in managing conservation areas and PWAs.

National Target 13

Farmers are involved in raring indigenous livestock and crops that aim at widening the genetic resources.

National Target 14

The use of CDPs as an environmental assessment and development planning.

National Target 16

Eswatini Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (EIRMP) works close with traditional healers in documenting TK and capacitating them in plant conservation.

National Target 18

Use of TK into research for medicinal and food nutrition purposes.

Section VII. Updated biodiversity country profiles

VII. Updated biodiversity country profile

Biodiversity facts

Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

According to Eswatini's State of Environment Report (2012), there is a decline and extinction of some wild animal species, similarly to the populations of indigenous plant species. Approximately 25% of each of the terrestrial ecosystems has been lost to some form of another land use. Land use change has been significantly been driven by the forest and sugarcane growth which has cumulatively occupied 644,924 ha of biodiversity-rich ecosystems in the year 2015. Aquatic water systems are under threat from agricultural development since wetlands are drained for the development or are negatively affected by changes within their catchment. Also, overexploitation of plant genetic resources from wetlands and terrestrial habitat poses a challenge to natural plant regeneration. These factors have resulted in the diminishing of resources and the reduction in the resilience of ecosystems.

Agriculture is the backbone of Eswatini's economy, and the sugar sector consumes over 96% of the country's freshwater for irrigation purposes. Sugar sector accounts for about 74% of agricultural production, 35% of agricultural wage employment and 13% of the GDP. It also accounts for about 25% of total merchandise exports in 2016. The citrus industry is also a significant contributor to the economy and alone produced around $10 million in sales in 2009. The world data atlas shows that in 2018 Eswatini travel and tourism contributed about 5.7% to GDP. Tourism contributed about 4% of the national GDP in 2011 and directly supported 6000 jobs (1.6% of total formal employment). Eswatini's wildlife and landscapes are considered important tourist attractions, among others.

Traditional medicine is widely used in Eswatini. It has been suggested that around 80% of the Swazi population consults the country's 8000 traditional healers, and a range of plant and animal species are used in the preparation of traditional medicine. An independent study reported that some households reported to be earning as much as $200 per month from the sale of craft made from indigenous plants. In addition, a draft FAO report on global forest resources assessment estimated that cosmetics made from non-wood forest products contributed about $60,000 to the local economy in 2010. The Swazi culture is also deeply dependent on biological diversity both for everyday life and various traditional ceremonies practiced annually. For example, cultural and traditional use

of biodiversity includes the reed (*Phragmites mauritianus*) dance and the Kingship ceremony which involves the fetching of Lusekwane (*Dichrostachys cinerea*) bush by unmarried male youths and delivering it at the Queen Mother's village. Also, traditional attire worn by males is made from selected wild animals (e.g. leopard (*Panthera pardus*), grey duiker (*Sylvicapra rotundifolia*) and impala (*Aepyceros melampus*).

Main pressures on and drivers of change to biodiversity (direct and indirect):

The main pressures on Eswatini's biodiversity include: conversion of natural habitats to other land uses; invasion of habitats by alien species (with the country's protected areas not spared); rapid expansion of settlements and urbanization, including into biodiversity-rich areas; wild fires destroying ecosystems and altering habitats; climate change; overgrazing and the unsustainable use of natural resources. In addition to the ever-increasing poverty, particularly in the rural areas, population growth results in increased pressure on natural resources thus leading to rapid degradation of Eswatini's biodiversity in a vicious cycle of declining availability. Illegal and uncontrolled hunting has resulted in the extermination of most Eswatini's vertebrates, especially on Swazi Nation Land (SNL).

Measures to enhance implementation of the Convention

Implementation of the NBSAP:

The first NBSAP was developed in 2001. It contained four core goals to which were to conserve a viable set of representative samples of the country's full range of natural ecosystems through a protected areas network; sustainably use of the biological resources of natural ecosystems outside the protected areas network; efficiently conserve the genetic base of Eswatini's crops and livestock breeds; and minimize the risks associated with the use of LMOs. Although targets were set, the plan was not fully implemented because it was not formally adopted as a national policy instrument. Furthermore, other implementation partners were unaware of their implementation obligations or options.

NBSAP achievements include the preparation of red data lists for some taxa, such as higher plants and vertebrates, and an atlas for trees. Moreover, the National Plant Genetic Resource Centre currently holds about 712 accessions from 30 cultivated species, and surveys of farm genetic resources have been carried out. Eswatini has also developed and approved a policy on biotechnology and biosafety, as well as enacted the Biosafety Act in 2012 along with guidelines and regulations to support implementation of the Act.

The NBSAP 2 is aligned with the global framework as well as the country's National Development Strategy (NDS) and the Poverty Reduction Strategy and Action Plan (PRSAP). It highlights and seeks to maintain the contribution of biodiversity and ecosystem services to human well-being, seeks to establish baselines to assist in effective monitoring of trends and also include measures to mainstream biodiversity into sectoral and cross-sectoral policies and programmes.

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 20112020:

The sixth national report confirms that Target 1 (Awareness increased) is on track to exceed target and Target 17 (National biodiversity strategies and action plans) fully attained, Target 2 and 11 are on track to achieve target.

Seminars and workshops have been held for educators, policymakers, media personnel, the private sector and communities, among other groups. Chiefs and rural groups have taken leadership and action in the management of indigenous forests. Targeted programmes in the National Environmental Education Programmes (NEEP) seek to raise awareness and understanding among decision-makers, including at the level of Parliament.

At present only 4.26% (64,100 ha) of the country is formally protected and a combination of both formal and informal PA has an area above 8% of conservation area managed by private landowners and communal land users. The GEF project envisages strengthening the effectiveness in the management of protected area (PA) systems of Eswatini to ensure a viable set of representative samples of the country's full range of natural ecosystems that are conserved through a network of PAs. The project's objective is to efficiently expand, manage and develop the country's PA to 10%. A baseline survey conducted in 2014 reviewed the one conducted in 2002 and the final assessment led to 8 conservation areas which were top in priority for gazetting to new PAs.

The Biodiversity Conservation and Participatory Project (BCPD) identified an east-west corridor in the northern part of the country, described as the Northern Biodiversity and Tourism Corridors (BTC), linking the coastal areas of Mozambique and South Africa with the Drakensberg escarpment (Songimvelo, Malolotja, Makhonjwa), and a north-south corridor in the eastern part of the country (The Eastern BTC) defined by the entire length of the Eswatini Lubombo plateau and escarpment.

It was conceptualised that the conservation of biodiversity and its management in the corridors will be underpinned by complementary activities that maximize the economic benefits to rural communities through sustainable livelihoods, that targeted infrastructure interventions and the development of tourism routes capitalizing on existing regional tourism dynamics.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.):

The coordination of the implementation of the NBSAP 2 has been neutralised by being placed at the Ministry of Tourism and Environmental Affairs under the Department of Environment Affairs which is still under capacitated but efforts are made to have the department fully capacitated to bring it to speed with the coordination and to ensure smooth facilitation of policy requirement, to support enforcing and implementing agencies.

Efforts are made to mainstream biodiversity management in local communities to close gaps of non-compliance in natural resources utilisation that falls under the Swazi Nation Land which is under local authorities where 70% of the populace reside and are the most vulnerable. This is through the Chief Development Plans that need to be rolled out to the entire nation through cultural structures to have their full endorsement.

Eswatini is making steady progress towards the mainstreaming of biodiversity in both the public and private sectors, although there are still challenges. The National Development Strategy (NDS) sets out the framework for sustainable development in a comprehensive manner across all sectors. It is an umbrella strategy for all other policies and strategies. Environmental integration in sectoral and macro-economic policies has taken place in a

number of recent sector policies, notably the National Rural Resettlement Policy, the National Forest Policy (which encourages community-based resource management), the Comprehensive Agricultural Sector Policy, the National Food Security Policy and the National Energy Policy. The Forest Bill (2010) envisages to further enforce the management and increase carbon sinks in the form of forests. In addition, the National Climate Change Policy, 2016 has been finalized, which aims to provide a national strategic framework for Eswatini to address the challenges and annex benefits as well as opportunities presented by climate change.

The National Trust Commission (Amendment) Bill (2009) was developed to amend the National Trust Commission Act (1972) to include new protected area categories and governance types.

The National Alien Invasive Plant Species Control and Management Strategy aims to promote cooperative, coordinated and integrated management and control of alien invasive plant species.

The Environmental Management Act (2002) requires Strategic Environmental Assessment (StrEA) of policies, programmes, strategies, action plans and legislative bills to be subjected to this form of assessment. Furthermore, mainstreaming biodiversity in development has been done mainly using Environmental Impact Assessments (EIA).

The Guidelines on Mining and Biodiversity are under development with the engagement of various stakeholders to secure the mainstreaming of biodiversity in the mining sector.

Mechanisms for monitoring and reviewing implementation:

The revised NBSAP 2 will have a monitoring and evaluation framework that will form part of a continuous process to evaluate the implementation of the actions outlined in the NBSAP.