THE KINGDOM OF LESOTHO

National Climate Change Policy Implementation Strategy

NCCPIS

Ministry of Energy and Meteorology

2017

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EXECUTIVE SUMMARY

This document, the 2017 National Climate Change Policy Implementation Strategy (NCCPIS), presents a five-year implementation strategy of the National Climate Change Policy 2017. The overall objective of the NCCPIS is to effect the implementation of the climate change Policy. It identifies action guidelines to build a climate resilient society and promote green development pathways by mainstreaming and integrating climate change into key national socio – economic and environmental sectors.

The strategic objectives of the NCCPIS are:

1. To increase resilience of Lesotho to the impacts of climate change by reducing climate risks to people, ecosystems and built environment while restoring and ensuring the rational use and the protection of natural resources;
2. To explore low-carbon development opportunities, nationally and internationally, in order to promote the sustainable use of resources and
3. To strengthen the governance, institutional and human capacity enabling access to technological and financial resources for the implementation of the NCCPIS with the equal participation of women, men, youth, vulnerable groups, the civil society and the private sector.

The Strategy identifies adaptation and climate risk reduction as issues of national priority. It also recognizes the need and potential to mitigate climate change through low carbon development pathways without prejudice to sustainable development. The strategy further identifies cross-cutting issues of pivotal importance in ensuring sustainable implementation of the climate change policy.

The strategic actions identified under each policy statement can cover issues relating to (a) adaptation and risk reduction (b) mitigation and low carbon development (c) the cross-cutting issues. The strategic actions are premised under the following 22 climate change policy statements:

1. Strengthen climate early warning systems and improve climatic information, including research and systematic observations;
2. Enhance the resilience of water resources by promoting integrated catchment management, ensuring access, supply and sanitation;
3. Promote climate-smart agriculture and food security systems;
4. Develop renewable energy sources and increase energy efficiency;
5. Promote climate resilience in mining;
6. Promote climate resilience and reduce greenhouse gas emissions in manufacturing;
7. Climate proof and increase efficiency of the tourism sector;
8. Enhance best practice for forestry and rangelands to mitigate and adapt to climate change;
9. Increase the resilience of environment, ecosystems and biodiversity;
10. Address climate change impacts on human health;
11. Promote low-carbon and climate resilient transport systems;

12. Climate proof human settlements and infrastructure;
13. Enhance the resilience of natural and cultural heritage;
14. Promote agro – ecological/district/local level approach to addressing climate change;
15. Strengthen climate change governance frameworks;
16. Promote participation of gender, youth, and vulnerable groups;
17. Promote participation of the civil society;
18. Promote participation of the private sector;
19. Implement education, training, public awareness and communication programmes;
20. Promote research and development, innovation and technology transfer;
21. Mobilize financial resources; and
22. Enhance social security/ protection by managing climate induced migration.

1 INTRODUCTION

The 2017 National Climate Change Policy Implementation Strategy (NCCPIS) is a five-year implementation framework of the National Climate Change Policy of 2017. The strategy is guided by principles and pillars of: a) adaptation and climate risk reduction; b) mitigation and low carbon development pathways; c) governance d) climate finance and investment framework as well as; e) cross-cutting issues. The strategy establishes action guidelines for mainstreaming climate change into key socio-economic sectoral plans and programmes while safeguarding environmental integrity and sustainable development in Lesotho.

For the effective implementation of the Policy, the Strategy recognises institutional framework for coordination, Monitoring and Evaluation (M&E) as key implementation arrangements. Furthermore, the NCCPIS includes targets, responsibilities and estimated costs. The NCCPIS is aligned with the National Strategic Development Plan (NDSP II), the Nationally Determined Contribution (NDC), the National Adaptation Programme of Actions (NAPA) and the National Communications (NCs).

2 NATIONAL CLIMATE CHANGE POLICY IMPLEMENTATION STRATEGY

The vision, the mission, the principles and the pillars of this strategy are those of the National Climate Change Policy of 2017.

2.1 VISION

The vision of the 2017 National Climate Change Policy Implementation Strategy is to build climate change resilient, low-carbon society and prosperous economy and environment in Lesotho.

2.2 MISSION

The mission is to increase climate change resilience and improve the wellbeing of Basotho through mainstreaming and implementing concrete measures for adaptation and climate risk reduction, mitigation and low-carbon development focusing on the most vulnerable, aiming at sustainable development, with active participation of all stakeholders in the social, environmental and economic sectors.

2.3 PRINCIPLES

The Strategy is based on the guiding principles of National Climate Change Policy of 2017 which emanate from the United Nations Framework Convention Climate Change (UNFCCC),

Sustainable Development Goals, African Union Agenda 2063, the Paris Agreement, and the National Strategic Development Plans.

2.4 PILLARS

The Strategy is supported by five pillars, namely: (a) adaptation and risk reduction, (b) mitigation and low-carbon development pathways (c) governance (d) climate finance and investment framework as well as (e) cross-cutting issues. On the basis of these pillars and subsequent policy statements, the strategy has identified respective strategic actions as outlined below.

2.4.1 ADAPTATION AND CLIMATE RISK MANAGEMENT ACTIONS

Lesotho is highly vulnerable to the negative impacts of climate change. In this regard, the strategy recognizes adaptation and risk management actions as the most important point of intervention towards building a climate resilient Lesotho. Table 1 shows various approaches for managing climate change risks.

The strategic adaptation actions are defined based on these approaches and organized by policy statements. They seek to enhance adaptive capacity and build resilience of Lesotho to the negative impacts of climate change. The strategy further recognises the urgent need for the provision of finance, capacity building and technology in order to meet the adaptation needs of the country. Furthermore, the strategy draws from the NDC and also underscores the need for research support in climate change adaptation. Sectorally, there are inadequate adaptation capabilities for data collection, processing and provision in the Energy, Agriculture, Land Use, Land Use Changes and Forestry, Health and Water sectors. Consequently, there is need to:

- Build capacity of experts and stakeholders in data preparation and collection to enhance information management, ownership, exchange, dissemination and sharing within and across sectors;
- Create systemic enabling working environment for the implementation of climate change activities in relation to institutional arrangements, performance management and reporting to ascertain roles and responsibilities, political will, ownership and empowerment, decision making and service delivery;
- Develop a database for reporting raw data which will take into consideration Intergovernmental Panel on Climate Change requirements by carrying out new studies to upgrade the datasets and then make use of remotely sensed and Geographical Information System (GIS) based data;
- Coordinate data pools to establish data archiving and sharing protocols;

- Support research in climate change[1].

2.4.2 MITIGATION AND LOW-CARBON DEVELOPMENT ACTIONS

Despite the low Level of Greenhouse Gases (GHG) emissions, Lesotho is willing to mitigate GHG emissions by leveraging on opportunities presented by low-carbon development pathways. In this regard, sectors such as energy, transport, agriculture, forestry, waste management, land use and land use change are identified as catalytic in propelling the transition to low-carbon development pathways and green economy.

According to the NDC Lesotho has already undertaken several actions to support a low carbon development trajectory based on national circumstances. Such include extensive investment into hydro, solar and wind power potential, embarking on rural electrification and afforestation projects. However, for the country to realize her full potential in contributing to global mitigation efforts, substantial support from the international community is imperative.

The NDC had set out the mitigation targets against a Business As Usual (BAU) projection considering emissions reductions in 5 sectors: (1) Energy, (2) Industrial Processes, (3) Agriculture, (4) Land-Use, Land-Use Change and Forestry (LULUCF), and (5) Waste. The plan to mitigate GHG emissions is built on the following: Improving crop and livestock production practices for food security while reducing emissions; Protecting and re-establishing forests for their economic and ecosystem services, while sequestering CO_2; Expanding electric power generation from renewable energy; Improving access to modern and energy efficient technologies in transport, industry and building sectors.

2.4.3 GOVERNANCE

Governance refers to the policy, legislation and institutional or organisation framework which should be put in place in order to guide the implementation of climate change policy and programmes in the country. It is therefore imperative that governance structures are established for proper implementation, coordination, and monitoring of climate change programs.

[1] LMS 2017, Lesotho's Nationally Determined Contribution

2.4.4 CLIMATE FINANCE AND INVESTMENT FRAMEWORK

Building a climate change resilient, low-carbon society and prosperous economy and environment requires substantial and additional financial resources to enhance the implementation of the proposed actions. In addition to existing funding mechanisms from the UNFCCC, the Strategy identifies various means through which financing may be obtained including: Dedicated Climate Funding from Bilateral and Multilateral Sources; The National Budget; Private Sector Finance and Foreign Direct Investments (FDI) and Funding from Carbon Markets

2.4.5 CROSS-CUTTING ISSUES

Cross cutting issues entail the following: (a) capacity building (education, training and public awareness); (b) research and systematic observation; (c) scientific innovation and technology development and transfer; (d) gender; (e) youth; and (f) vulnerable groups. These themes enhance effective, efficient, and sustainable implementation of proposed climate change mitigation and adaptation interventions.

2.5 STRATEGIC OBJECTIVES AND OUTCOMES

For Lesotho to move towards achieving a long-term vision of building climate change resilient, low-carbon society and prosperous economy and environment within the 5 years, this strategy has identified three strategic objectives and outcomes presented in Table1 below.

Table 1: Strategic Objective, Outcomes and Results

Strategic Objective 1 **To increase resilience of Lesotho to the impacts of Climate Change by reducing climate risks to people, ecosystems and built environment while restoring and ensuring the rational use and the protection of natural resources;**	
Strategic Outcome (SO 1)	**Strategic Results (SR 1)**
SO1: Increased resilience of national society and property to the impacts of climate change ensuring sustainable use and the protection of natural resources.	**SR 1.1** Established early warning system frameworks **SR 1.2** Climate mainstreamed into sector policies, strategies and plans **SR 1.3** Integrated Catchment Management Frameworks **SR 1.4** Climate proofed infrastructure for development.
Strategic Objective 2 **To explore low-carbon development opportunities, nationally and internationally, in order to promote the sustainable use of resources**	
Strategic Outcome (SO 2)	**Strategic Results (SR 2)**
SO2: Identified and implemented low-carbon emission pathways	**SR 2.1** Implemented the 2017 Sustainable Energy Strategy **SR 2.2** Developed Nationally Appropriate Mitigation Actions to ensure low- carbon development pathways

	SR 2.3 Implemented some of the Mitigation actions Identified under the Nationally Determined Contributions **SR 2. 4** Increased vegetation (grass, shrubs and forestry) cover
<u>Strategic Objective 3</u> **To strengthen governance, institutional and human capacity enabling access to technological and financial resources for the implementation of the NCCP with the equal participation of women, men, youth, vulnerable groups, the civil society and the private sector.**	
Strategic Outcome (SO 3)	**Strategic Results (SR 3)**
SO3: Improved and inclusive climate change governance, institutional frameworks and human capacity	**SR 3.1** Strengthened coordination frameworks at National and Local levels. **SR 3.2** Strengthened Climate Change Entity (Lesotho Meteorological Services) for effective coordination of climate change issues. **SR 3.3** Increased number of human resource with expertise on climate and climate change issues. **SR 3.4** Established institutions for the direct access of climate change finance **SR 3.5** Strengthened capacity of the Nationally Designated Entity for technology for climate change

2.6 MEANS OF IMPLEMENTATION

Means of implementation include **institutional frameworks** and **resource mobilization framework** for coordination of the implementation of the Policy as well as mobilizing necessary financial resources. Climate change is a cross – cutting issue which affects all socio-economic sectors. This necessitates active engagement of all sectors of the society in implementing various mitigation and adaptation measures, the ultimate goal being to mainstream climate change into national strategic planning frameworks such as the NSDP and annual sectoral plans, programmes and budgets. The strategy recognises the need for an appropriate institutional and organisational framework for coordinating and mainstreaming climate change in all sectors of the economy.

2.6.1 INSTITUTIONAL FRAMEWORKS

2.6.1.1 CURRENT INSTITUTIONAL ARRANGEMENTS

The **Lesotho Meteorological Services** (LMS), a department of the Ministry of Energy and Meteorology (MEM), is mandated to collect and analyse climate data, and forecast climatic conditions over Lesotho with the objective to harmonize development and other activities in all sectors of the economy with these expected weather and climatic conditions. As a focal point for climate, climate change and the ozone layer protection issues, LMS maintains active role in implementing measures with several multilateral organizations such as the WMO, UNFCCC, UN Bodies, ICAO, etc. Specifically on issues of climate change LMS is mandated to coordinate activities that encompasses the following:

- **Climate change policy guidance**
- **Climate change adaptation and mitigation**
- **Assessments of climate change vulnerabilities and of adaptation and mitigation impacts across climate-sensitive sectors of the economy;**
- **Reporting national progress on climate change**
- **Advice on climate change science and findings**

To make its climate change coordination role more effective, in 2013 LMS established a **National Climate Change Committee** (NCCC), an advisory body that is composed of representatives from governmental and non-state stakeholder institutions (civil society, the private sector, academia and development partners). In addition to the validation of

information and monitoring climate change integration in their respective sectors, the NCCC carries the following functions[2]:

- To serve as an advisory body on issues relating to climate change;
- To enhance coordination and dialogue amongst national stakeholders on issues of climate change;
- To promote climate change data and information collection, sharing and archiving;
- To facilitate the development, implementation and review of Lesotho's national climate change policy, strategy, programmes and action plans;
- To mobilize resources, nationally and internationally, for the implementation of climate change programmes;
- To assist key sectors to integrate/mainstream issues of climate change in their policies and plans;
- To promote advocacy for climate change initiatives;
- To prioritise climate change initiatives/projects according to national needs and priorities; and
- To monitor, evaluate and report on the implementation of national and sectoral climate change programmes.

The weaknesses of the NCCC emanate from the fact that the membership is institutional, and the experience is that attendees are not backed by sector-specific climate change specialists who are capable of modeling and forecasting climate change impacts in their respective vulnerable sectors. So far technical inputs have been drawn from consultancy groups, usually from local academic institutions. As a result, the integration of climate change both in national policies and plans and climate-sensitive sectors of the economy remains weak. Further, there is currently limited mechanism to coordinate climate change issues at the local level where the impacts of climate change are more intense and where vulnerability is greater. For the formulation, integration and implementation of effective climate change mitigation and adaptation policies and programmes, more effective institutional arrangements needs to be considered, together with capacity strengthening across vulnerable sectors of the economy and at local levels.

2.6.1.2 THE PROPOSED INSTITUTIONAL FRAMEWORK

The proposed reorganization for the improved coordination of climate change issues, including mainstreaming, is shown on Figure 1. The proposed structure aims at improving coordination between the Climate Change Unit (CCU) in LMS and line Ministries as well as between the same Unit and local governments as well as private sector, NGOs, civil societies and others. The structure carries the following advantages:

[2] Terms of Reference (TORs) published by LMS in November 2014.

- The structure builds on what already exists, and therefore there is no overarching disruption of the current operations of climate change institutions;
- The structure is simple and ready for implementation without the need to apply enormous resources;
- The structure can be implemented using existing resources without having to increase establishments and recruiting new staff; and
- The structure provides for both lateral and vertical coordination, and strengthens climate change planning through coordinating committees and a technical committee.

A. The National Climate Change Committee

In order to align with the latest developments, The National Climate Change Committee (NCCC) should be capacitated and its mandate expanded to include the following:

- To assist LMS in the formulation of policies and plans relating to the mainstreaming of climate change adaptation in Lesotho's National Strategic Development Plans, as well as in other development frameworks;
- To advise the LMS and enhance coordination and dialogue amongst national stakeholders on issues of climate change;
- To commission the assessment of current and future national mitigation and adaptation measures, the formulation of new measures, and the mainstreaming of these in national policies, development plans, frameworks and programmes;
- To assist the mainstreaming of climate change mitigation and adaptation strategy formulation, implementation, monitoring and evaluation across climate-sensitive sectors;
- To identify climate sensitive sectors and advise on the commissioning of climate change vulnerability and risk assessments across the same;
- To take into account the projected climate change and associated adverse impacts, particularly the nature, intensity and frequency of hazards, and facilitate the formulation of more appropriate responses;
- To prepare appeals for and mobilize resources, nationally and internationally, for the implementation of climate change mitigation and adaptation responses;
- To review periodic and specific vulnerability reports and solicit financial support for response measures thereof from both domestic and foreign sources;
- To commission policy and legislative reviews to accommodate institutional restructuring measures that are approved by the Cabinet; and
- To facilitate institutional capacity needs assessments and build national, sectoral and local level capacity for climate change mitigation and adaptation responses.

B. The Climate Change Technical Committee

The **Climate Change Technical Committee** (CCTC) is the technical think tank of the LMS that will tender its technical inputs through the CCU. Specifically, the Committee has to carry out the following functions:

- To work closely with the LMS to ensure the mainstreaming of climate change mitigation and adaptation in national, sectoral and local policies, frameworks and programmes;
- To gather climate data and use climate science to make climate change projections and their impacts in various sectors;
- To undertake vulnerability and risk assessments across climate-sensitive sectors as directed by LMS and the NCCC;
- To review climate change mitigation and adaptation measures across climate-sensitive sectors and propose/formulate new and more appropriate measures; and
- To advise the LMS and the NCCC on the required institutional capacities for climate change mitigation and adaptation from the national, sectoral to the local levels.

The CCTC is to be chaired by the Head of the CCU in LMS and composed of the following:

- Professional staff of the CCU;
- Technical staff co-opted from institutions that are directly involved in the application of climate science and design and implementation of climate change mitigation and adaptation responses (Agriculture, Water, Forestry, Soil Conservation, Range, etc);
- Technical staff from academia and research institutions; and
- Technical staff from high GHG emission sectors (Industry, Mining, Sanitation, Transport, etc.).

C. The Local Climate Change Coordinating Committee

To establish synergies at the local level (District or community level), **Local Climate Change Committees** (LCCCs) should be constituted to perform the following functions:

- To ensure the mainstreaming of climate change mitigation and adaptation in local government policies, frameworks and programmes;
- To assist vulnerability and risk assessments that are conducted in their local areas by the CCTC or consultants;
- To review local level climate change mitigation and adaptation measures and propose new and more appropriate measures;
- To advise on the required institutional capacities for climate change mitigation and adaptation at the local level;
- To ensure coordination amongst various local actors that are involved in the implementation of climate change mitigation and adaptation measures and projects;
- To assist the formulation of integrated climate change mitigation and adaptation programmes, their implementation, monitoring and evaluation at the local level;
- To plan and mount public awareness campaigns on climate change mitigation/adaptation strategies at the local level;

The LCCC will be chaired by a representative of the Local Government office and be composed of the following:

- District Heads of climate-sensitive sectors (Agriculture, Water, Forestry, Soil Conservation, Range, etc);
- Technical staff from high GHG emission sectors (Sanitation, Transport, etc.);
- Representative of the local municipality;
- Representatives of civil society organizations and the private sector;
- Representatives of chiefs and traditional authorities; and
- Representatives of local communities.
- District Councillors.

It should be emphasized that the LCCC should be provided with a supportive framework of standards, financial resources, climate change mitigation and adaptation information, services and capacities to help individual households and communities to take decisions that reduce their exposure to climate risks. Since the LCCC comprises representatives of institutions that deliver public services in areas such as water and sanitation, health, law enforcement, education, emergency response, social protection, and engineering and public works, it should assume a leading role in the mitigation and adaptation process at the local level, and constitute an effective support to community-level initiatives. The LCCC will also ensure effective national-local coordination, or enable coordination between climate risk management services provided by central agencies and local needs. Through decentralization, therefore, integration among line ministries can be fostered at the local level. It is therefore imperative to build institutional capacity at this level.

So far decentralization reforms in Lesotho have not been characterized by a sufficient transfer of powers and resources to local institutions, as intimated by the Decentralization Policy of 2014, and, in general, local institutions are often not accountable to local communities. Strong local institutions and capacities should be considered critically important for the implementation of successful climate change mitigation and adaptation measures on the ground.

D. Climate Change Coordinators

The position of **Climate Change Coordinator** (CCC) should be created in every climate-sensitive line Ministry and at the district level. To avoid a ballooning of the establishment, this position should be filled by one Planning Officer in each of the Planning Units, and one District Resource Planner in each district. The identified incumbents should be retrained by LMS (Short and long-term training) to execute the following duties:

- To work closely with the CCU, NCCC, CCTC or LCCC to ensure the mainstreaming of climate change mitigation/adaptation in sectoral/local policies, frameworks and programmes;
- To undertake vulnerability and risk assessments in their respective climate-sensitive sectors/localities as directed by the NCCC/CCU;

- To gather climate data and use climate science to make projections of future vulnerabilities and risks under different sectoral/local climate change scenarios;
- To review climate change mitigation/adaptation measures in their climate-sensitive sector/locality and propose/formulate new and more appropriate measures;
- To ensure that mitigation/adaptation proposals are subjected to EIA and economic analyses before they are submitted to the CCU for further processing; and
- To advise the CCU and NCCC on the required institutional capacities for climate change mitigation/adaptation in their respective sectors/ localities.

The CCCs must be degree holders in either economic planning, environment, meteorology, natural resources management, environmental statistics, etc. and carry a minimum of 5 years experience in climate change mitigation/adaptation or related fields

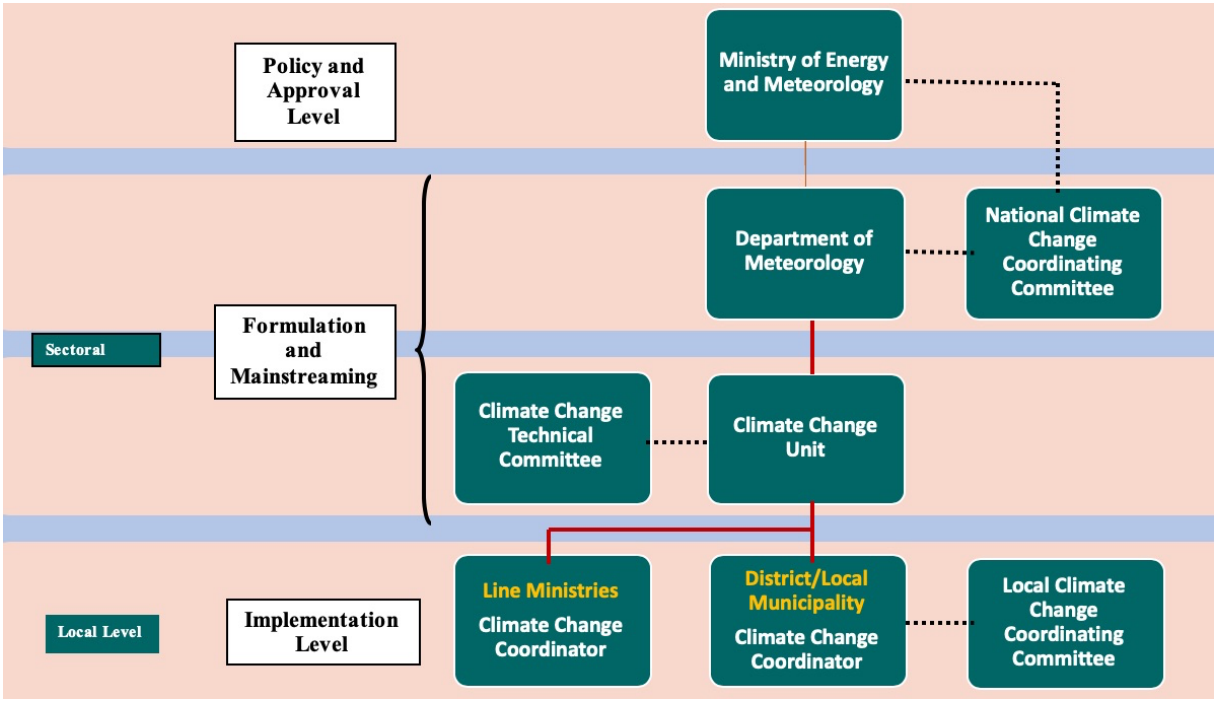

Figure 1: Proposed Institutional Arrangement for effective implementation

2.6.2 RESOURCE MOBILISATION

The Strategy recognises that responding to climate change requires predictable and additional substantial financial resources for both adaptation and transition to Low- carbon Development (see **Figure 2 and 3)**. These calls for the Government to undertake innovative measures aimed at ensuring the sustainable availability of the required financial resources to implement the policy. These measures should ensure inclusive participation of all relevant stakeholders such as the private sector, civil society including NGOs and development partners.

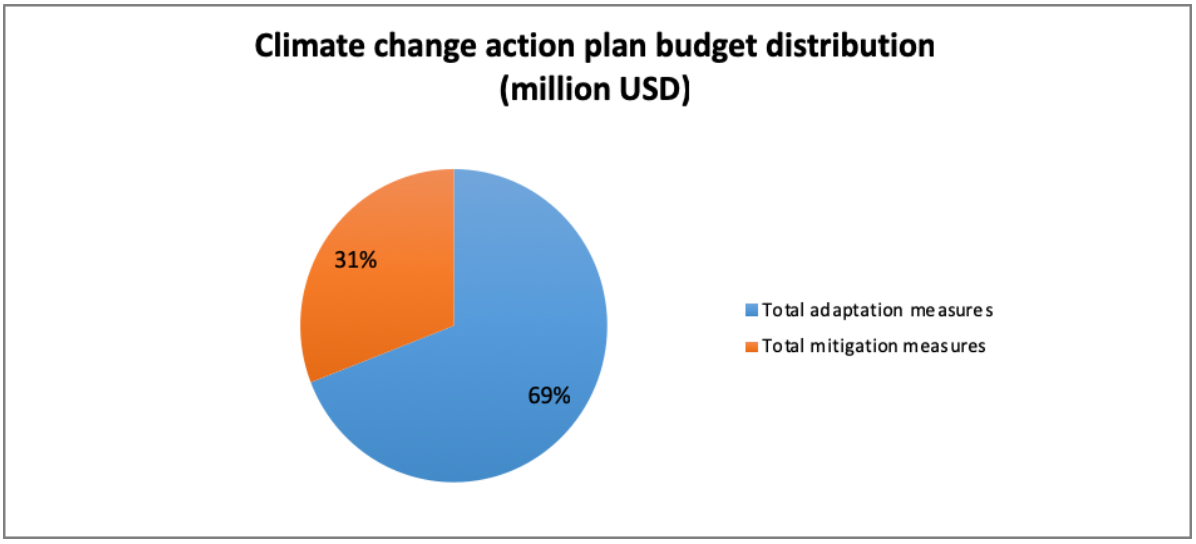

Figure 2: Climate Change Action Budget Distribution 2017-2022

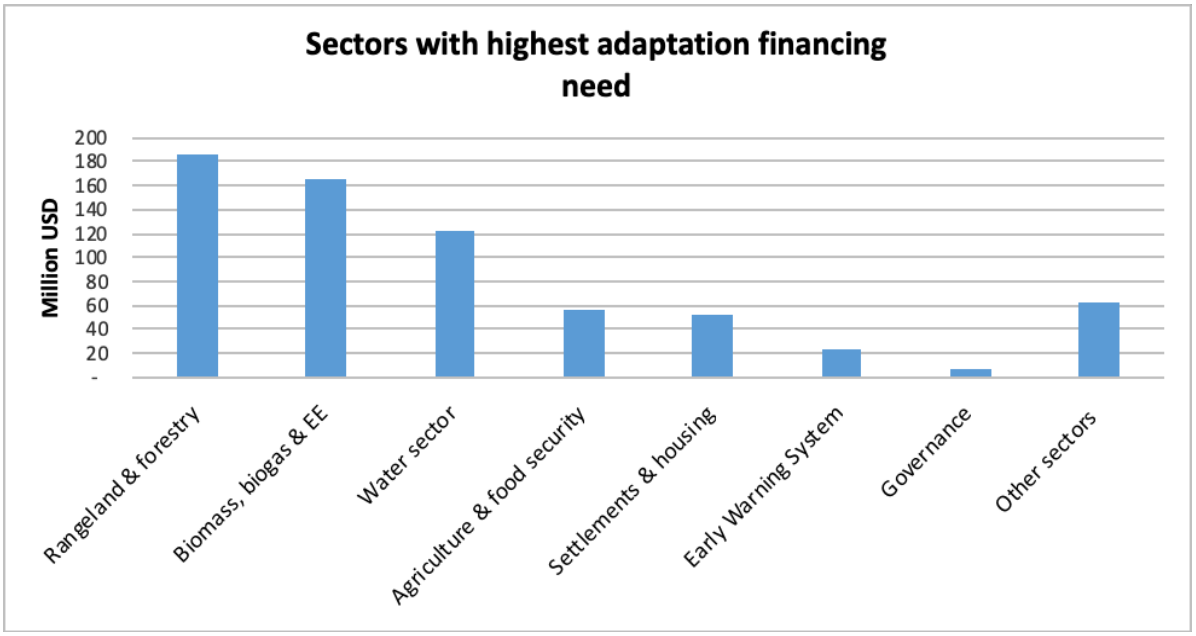

Figure 3: Sectors with Highest Adaptation finance need

2.7 MONITORING AND EVALUATION

The main objective of the M&E for NCCIS is to track Lesotho's transition towards a more climate-resilient and lower-carbon economy of Lesotho, by providing evidence base to inform effective climate change interventions and response.This objective will be achieved through designing the framework that details two different approaches for both climate resilience and Low- Carbon Development. The framework will also enable Lesotho to track **climate** financial flows, Support on technology transfer, and capacity building. Figure 4 illustrates the objectives and the coverage of the M&E Framework while Table 2 represents the key elements of the M&E framework.

Table 2: Key elements of M&E

Objectives of the M&E	**Indicators**	**Data to be collected and Information to be generated**
To track transition to a **climate-resilient** Economy	• Sectorial adaptation measures • Climate proofed Infrastructure • Climate Change Adaptation Integration into sectoral policies, strategy and plans • Robust early warning systems	Climate information, Climate Risks, Impacts and vulnerabilities, Data on Adaptation Measures
To track transition to a **lower-carbon development**	• Sectorial mitigation measures • 10% of GHG emissions reduced • Appropriate mitigation targets based on sectors mitigation potential assessment • Climate Change mitigation Integration into sectoral policies, strategy and plans	Greenhouse Gas Inventories and Projections, Mitigation Assessment Reports, Mitigation Options.
To track **climate finance**	• Costs associated to Adaptation measures, transition to low Carbon development and climate resilience, • financial support received for capacity building, technology innovation and transfer	Financial Flows Donors, Public and Private Funds
To track **Technology Transfer and Capacity Building**	• capacity needs assessment report • Updated technology needs assessment report • Number of staff of climate sensitive sectors trained • New climate resilient technologies introduced, tried and tested	Financial reports, training reports

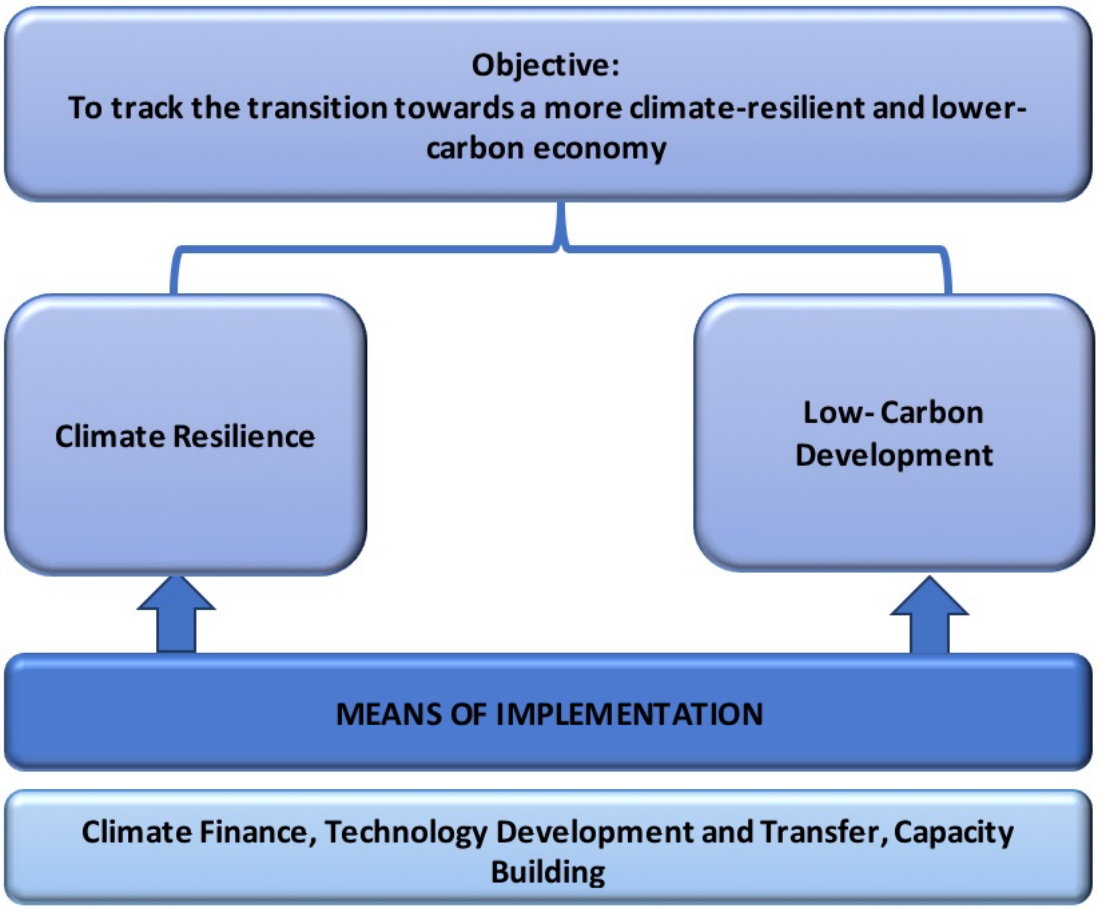

Figure 4: the objectives and the coverage of the M&E Framework

Monitoring

For the monitoring part of the M&E, the information shall be provided or collected through reports submitted by the key sectors to the Climate Change Unit once every six months. In additional the following method shall also be applied;

1. Stakeholder analysis
2. Documentation review
3. Biophysical measurements
4. Direct observation
5. Cost Benefit Analysis
6. Questionnaires and surveys
7. Semi-structured interviews

Evaluation Plan

Given the number of strategic objectives, it is recommended that external Third party evaluator undertakes a mid-term evaluation at the middle of the plan period and a terminal evaluation just before the end of the strategic plan period. Both exercises should be conducted after the evaluation terms of reference have been drafted and agreed upon by all the major stakeholders M&E framework is illustrated in Figure 5 below.

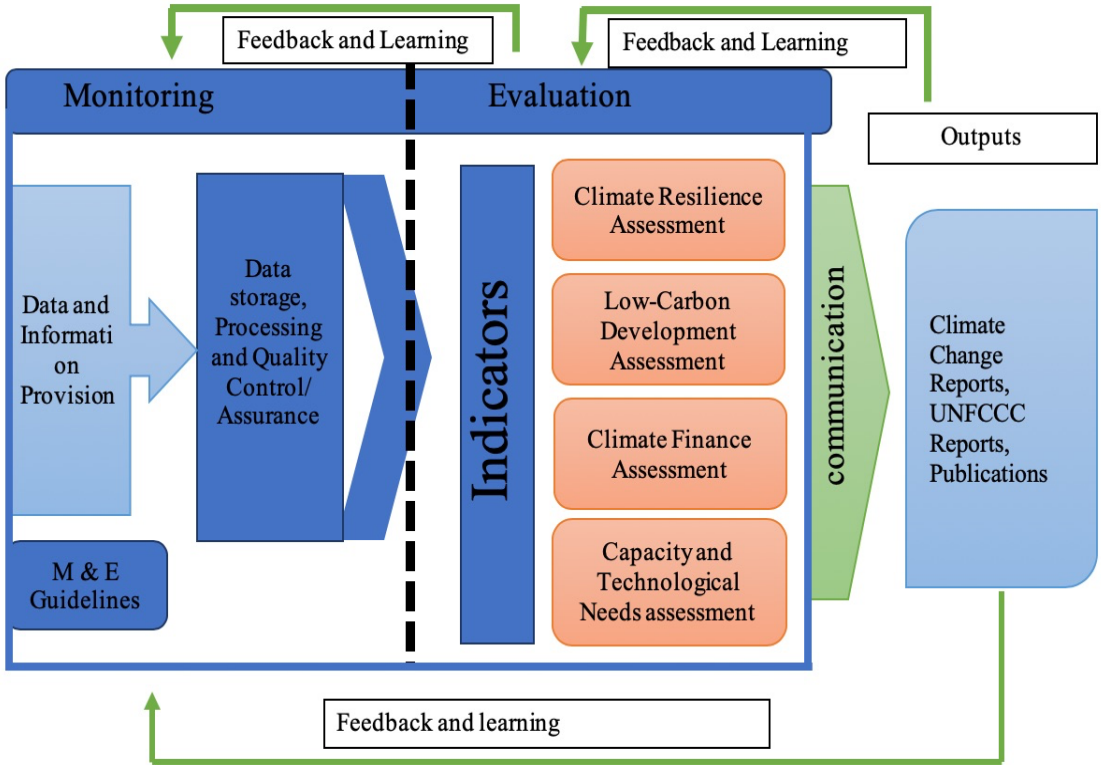

Figure 5: Monitoring and Evaluation System Design

3 STRATEGIC ACTIONS

3.1 COSTED STRATEGIC ACTIONS

In line with respective 22 Policy statements, Table 3 presents Strategic actions. The activities respond to the urgent need for action in the five-year planning period of the strategy.

Table 3: Strategic Actions

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Policy Statement 1: Strengthening climate early warning systems and improvement of climatic information, including RSO						
Establish and operationalize necessary infrastructure to provide all climate information necessary for future monitoring, climate trend detection, management of climate variability, early warning and disaster management and human capacity to enable functional national Early Warning System (EWS)	MEM, DMA	Comprehensive and operational early warning infrastructure level of capacity	1 PUMA synergy 2015 120 Meteorological Observer: staff 10% trained 15 automatic weather stations 22 climate stations 52 rainfall stations 10 District disaster Management Team	Hydro-meteorological infrastructure is installed Capacity increased	progress report	5.01
Create institutional mechanisms for coordination and implementation of Early	MEM, DMA	Coordination Mechanism for early warning	DMA Early warning Preparedness coordination team	Enhanced institutional capacity	progress report	6.00

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Warning System in Lesotho and for use of climate information for policy making and sector planning						
Pilot testing of EWS system and response strategies and sustainability plan	MEM, DMA	real time, reliable, consistent early warning messages	Report on the existing early warning systems	Delivery of timely high quality climate information	forecast verification reports	8.68
Set up remote sensing and GIS- based climate database management systems	MEM, NCCC	Climate Change Database Management System	Climsoft	Climate Change Database	reports	1.5
Policy Statement 2: Enhance the resilience of water resources by promoting the integrated catchment management, ensuring access, supply and sanitation						
Review of water related strategies and policies for climate mainstreaming	MW	Updated strategy including climate issues	Outdated strategy does not include climate issues	Updated strategy	MW strategy	0.50
Strengthen monitoring of surface and ground water data for catchment areas and link these to climate models	MW/ DRW	Climate proof water resources information sets	50% of data captured	100% of data captured	DRW reports	6.06
Increase resilience through water harvesting, water reuse practices	MW/ MAFS	number of households and institutions benefiting from	BoS reports, Hydrological reports from DWA	additional 15% of the households and 100% of rural institutions (schools, hospitals)	BoS reports	37.50

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
		water harvesting				
Support programms of constructing multipurpose dams to enhance water storage	MAFS, MPWT, MFRSC,	number of dams built	Katse, Mohale and Muela, small dams	35 small dams	commissioning reports	10.00
Operationalisation of Integrated Catchment Management Framework	MW/ DWA	6 local catchments committees capacitated and operating	2 pilot catchments areas under EU supported programme	6 out of 74 catchments	DWA and evaluation reports	29.53
Protect and rehabilitate the wetlands areass	MW; MTEC; MFRSC	Number of ha of wetlands rehabilitated and protected	area of degraded wetland, (take from sustainable land management toolkit)	30 pilot areas implemented	MW and MTEC joint report	20.70
Increasing rural water supply network	MW/ DRWS	Number of people served by water points	access to water is 80% BoS of which 65% has an operating system	88% population reached	BoS and DRWS reports	17.00
Policy Statement 3: Promotion of climate-smart agriculture and food security systems						
Conservation Agriculture: advocacy, extension/ training, research, integration into formal curricula	MAFS	Level of capacity and awareness	Level of capacity to be defined through baseline survey	Increased level of capacity and awareness	Progress monitoring survey	1.00

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Seed breeding for high yield and drought tolerance	MAFS	ha of sorghum production	project ongoing since 1996 on xx ha, xx number of beneficiaries	additional 30,000 beneficiaries, xx ha	MAFS reports	7.90
enhance Climate Change Adaptation capacity in the Agriculture Sector	MAFS	Level of capacity	project ongoing since 2008 baseline from project reports	Increased level of capacity and awareness	Progress monitoring survey	1.00
Promote innovation in post-harvest storage and food processing	MAFS, ATS, Academia	increase of capacity of food storage and processing	limited and declining food processing, national food processing sector can not compete with SA	Capacity of functioning food storage and processing unit	MAFS reports, BoS reports	3.10
Promote science and technology to enhance food security, productivity and resilience	MAFS, MCST,ATS, Agriculture College of Lesotho	number of appropriate technologies tested	insufficient technologies	5technologies adapted	AST report	0.50
Update sector policy and food security strategy to mainstream climate smart agricultural approaches	MAFS, NCCC, LMS	Updated Agriculture policy	outdated sector policy and food security strategy lacking CC element	climate mainstreamed sector policy and food security strategy	Policy document	0.50
Expand climate smart agricultural practices to smallholders farmers	MAFS	BoS Report, FAOStat	Pilot scale experience with shade netting, green houses, tunnels through SAPAD World Bank	Piloting with farmers and highly small holders farmers	Number of Climate Smart Project Implemented	17.70

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
			Funded competitive Grant Schemes			
Develop irrigation systems and capacity for small holder farmers to produce high value crops	MAFS	BoS Report, FAOStat	MAFS irrigation baseline ongoing projects from 1995	Expansion of drip and solar pump systems 30000 ha	Number of Irrigation Systems installed	13.80
Develop local seed breeding and multiplication programme for food crops	MAFS	breeding station and technical capacity	Limited seed breeding capacity in Lesotho	Seed breeding and multiplication centre by 2023	MAFS report	1.00
Scaling up soil and land conservation in crop lands	MAFS	ha of crop land under conservation practices	MAFS records ongoing Land Rehabilitation Program	Additional number of ha of crop land under conservation agriculture	MAFS records	10.00
Policy Statement 4: Develop renewable energy sources and increasing energy efficiency						
Develop clean and sustainable energy sources	MEM/ DoE, LEC	solar, wind, small hydro	72 MW Hydro, 250 KW Solar PV	200MW	DoE Report	283.00
Reduce biomass consumption through adoption of energy efficient cook stoves	DoE, private sector, civil society	Use of efficient cookstoves in HHs and Institutions	7000 efficient stoves in use	120,000 stoves	Biomass energy status report	10.00
Reduce electricity consumption through increasing energy efficiency at consumer level	DoE, private sector, civil society	Solar Street lights, SWH in HHs and Institutions, and efficient lights in HHs and Institutions	250 Solar Street lights, 15 SWH installed in Clinics	5000, Solar street lights, 2000 SWH, and 100% incandescent lights replaced	Energy status report	44.00

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Increase local availability of biomass through reforestation and afforestation	MFRSC, MCST	Biomass available in the country	check status of the project to get the baseline	120 k of ha to meet the needs	BoS reports	108.86
Adoption of biogas for households and institutional users	DoE, private sector, civil society	Biogas used in cooking and heating	about 600 plants	3000 plants (estimated 20% institutional)	Biomass Energy Status Report	2.50
Policy Statement 5: Promotion of climate resilience in the mining sector						
Design and Implement Early warning system for mines to reduce flood risks and other climate sensitive risks	MEM/ LMS, Ministry of Mines and Geology, Mining Companies, DMA	Mining climate risk plan	Inadequate communication forecast from LMS to mines	Mining climate risk plan	LMS records	0.50
Improve EE in mining processes	DoE, private sector	Energy consumption	Energy audit required	Minus 10% energy consumed from BAU	Energy audits	2.3
Policy Statement 6: Adapt and reduction of greenhouse emissions in manufacturing						
Improve resource efficiency in manufacturing processes	DoE, MTI, private sector	Resource consumption	Resource inputs audit	Minus 10% resources consumed from BAU	Resource inputs audit	4
Policy Statement 7: Climate proofing and increasing the efficiency of the tourism sector						
Develop methodology to climate proof current and future tourism investments	MTEC, Private sector	Number of climate proofed infrastructure	Tourism audits needed	At least 15% of infrastructure protected	Reports	6.1
Improve resource efficiency in tourism sector	MTEC, private sector	Resource consumption	Resource inputs audit	Minus 10% resources consumed from BAU	Resource inputs audit	0.50
Include resource efficiency criteria in the grading of tourist facilities	MTEC, private sector	number of green label issued	inadequate consideration of resource efficiency	10% of the sector to shift to resource efficiency	records of the MTEC Grading Commission	1.8

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
			in current grading system			
Policy Statement 8: Enhancement of best practices for forestry and rangelands to mitigate and adapt to climate change						
Support review and implementation of National Forest Policy	MFRSC	reviewed policy including climate issues	outdated policy	Updated climate smart policy	Policy	0.75
Develop and maintain a frequent forest inventory system to facilitate monitoring of forest status and initiate a research programme on a range of climate change-related topics	MFRSC	Land Used Maps	lack of forestry inventory	Inventory	Forest reports	1.50
Support community based agro-forestry programs	MFRSC	# ha of agro-forests # of people benefiting from agro-forestry	insufficient agro-forests	# ha of agro-forests 12,000 people benefiting from agro-forestry,	Project reports	14.80
Promote growing of drought tolerant and indigenous Tree species	MFRSC, MAFS & MLGCA	Number of drought tolerant trees planted	BoS report	30% increase	reports	35.5
Community based afforestation and reforestation to reduce soil erosion and increase carbon sinks	MFRSC & MLGCA	ha of forests planted	NSDP report 13550 ha in 2012	NSDP 20,000 ha by 2020, 22,500 by 2023	Min reports	10.15

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Upscale integrated rangeland management project (watershed management)	MFSC	ha of rangeland properly managed	currently improved range lands (from MFSC records)	increase in number of ha properly managed roll out to 50% of the catchment areas	MFSC reports	147.66
Rangeland managed in climate smart way (WAMPP/MAFS)	MAFS, MFRC, Growers associations	ha of rangeland properly managed	280,000 ha (2012)	600,000 ha by 2018	WAMPP records, verification reports	12.00
Support review and implementation of National Forest Policy	MFSC	reviewed policy including climate issues	outdated policy	Updated climate smart policy	Policy	0.75
Policy Statement 9: Increasing of the resilience of environment, ecosystems and biodiversity						
Enhance regulatory protection for species potentially at risk due to climate change	MTEC	enhanced regulation	lack of adequate regulation	adequate regulation for species protection	regulation	0.50
Mainstreaming climate change into the national environmental management systems, tools and practices	MTEC, LMS	Revised policy, plans and regulatory frameworks	Policy, act	Climate change mainstreamed into environmental management systems	policy	0.75
Update the biodiversity report	MTEC	Updated report	IUCN desk study 2010	Updated report	Report	0.80
Promoting conservation and regeneration of biodiversity, focusing on indigenous species	MTEC, NGOs, media	% of target group reached, level of awareness increased	low awareness among businesses, farmers, institutions and general public	improved awareness and outreach	awareness surveys	0.30
Management and reclamation of degraded and	MFLR, MTEC	Ha of land protected	low awareness among businesses,	Ha of land protected	,Maps and reports	1.00

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
eroded land in the flood prone areas			lack of adequate regulation			
Enhance regulatory protection for species potentially at risk due to climate change	MTEC	enhanced regulation	lack of adequate regulation	adequate regulation for species protection	regulation	0.50
Policy Statement 10: Addressing of impacts on human health						
Implement the National Plan for Libreville declaration 2013; Improve national resilience to CC and CC governance in health	MH	funds disbursed	not yet started	National plan implemented	MoH/ MoF records	7.16
Policy Statement 11: Promote low-carbon and climate change resilient transport systems and infrastructures						
Strengthen standards to ensure that roads and critical public infrastructure are climate proofed.	MPWT	Standards	Inadequate standards	Updated standards	Standards	0.30
Reduce GHG emissions through enforcing national vehicle emission standards and control systems combined with import restrictions of high emission vehicles	MPWT, MEM	Standards and centres	No standards and centres	Standards in and emission control centres in place	MoPWT records	0.60
Develop transport master plan for urban areas encouraging low carbon transport systems	MOWT, MLGCA	Maseru Urban and Transport Plan	No Maseru Urban and Transport Plan	Maseru Urban and Transport Plan	MoPWT records	1.50

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Strengthen standards to ensure that roads and critical public infrastructure are climate proofed.	MPWT	Standards	Inadequate standards	Updated standards	Standards	0.30
Policy Statement 12: promote climate safe human settlements and efficient housing						
Establish international insurance fund for disaster management and preparedness such as relocation programmes/schemes to facilitate relocation from disaster prone to safer climate areas;	DMA, Private Sector, Insurance Companies, Banks	level of insurance	no participation in regional disaster insurance fund	established and functional insurance scheme	Participation in climate insurance fund	50.00
Develop codes for low carbon and Climate resilient buildings	MPWT	Updated building code	Building Control Act 1995 Energy Conservation Guidelines in Buildings, 1993	Update act include for low carbon and climate resilience	Updated building code	0.70
Develop climate vulnerability maps for human settlements to guide urban and rural development plans, including sustainable land use planning and management	MLGCA, LAA, LMS, LTDC, LSPP	Vulnerability maps	Outdated Town and Regional Planning Act not taking into account vulnerability	Countrywide climate vulnerability maps	Availability of maps at MLGCA, LMS	1.00
Policy Statement 13: Enhance the resilience of natural and cultural heritage						

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Develop a framework for protecting cultural artefacts and indigenous knowledge in the country against climate hazards	MTEC	framework for protecting cultural artefacts and indigenous knowledge	inadequate framework	climate proofed framework	Availability climate proofed framework	0.30
Training heritage professionals to plan for climate change	MTEC	Enhanced understanding of climate change impacts on heritage	Low level of awareness	Increased level of awareness countrywide	Training reports	0.50
Policy Statement 14: Promotion of Agro-ecological/District/Local approaches to addressing climate change						
Capacity building of local government and chieftainship on climate change issues	MLGCA, NGOs	5 district councils capacitated	Low level of awareness	Increased level of awareness within 4 district councils	Training reports	1.50
Piloting Climate Change Resilient and Low Carbon Communities, Local Adaptation Plan of Actions in the 4 agro-ecological zones	MLGCA, UNCDF local	Community Councils supported	4 Community Council plans developed	4 councils supported by 2021; additional 10 councils supported by 2023	MLGCA/ UNCDF reports	0.53
Policy Statement 15: Strengthen climate change governance framework						
Strengthen institutions in formulating the National Adaptation Plan	LMS	NAP	draft NAP	NAP ready (2020)	NAP accepted	3.00
Develop capacity across all sectors to mainstream Climate Change and to	MEM/ LMS	specialized units established	limited capacity	established and staffed LMS (5 specialized units)	LMS	1.10

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
mobilize resources to support climate projects						
Improve the capacity of each ministry level planning units to manage climate change issues in coordination with LMS and NCCC	line ministries	focal points capacitated	limited capacity	sectoral focal point on climate change within the planning units	LMS reports	2.00
Policy Statement 16: Promote the participation of gender, youth, and vulnerable groups						
Create awareness amongst women, men, youth and other vulnerable groups through the implementation of the elaborate and targeted communication campaign	MGYS, MCST, LMS, NGOs	level of climate awareness of women, youth and vulnerable groups	to be established	increased climate awareness of women, youth and vulnerable groups	awareness survey	1.00
Develop and implement gender and social inclusion program in climate change programmes	MGYS, MCST, LMS, NGOs	level of climate awareness of women, youth and vulnerable groups	to be established	Inclusive program designed and implemented	Inclusive projects	1.50
Develop policy and guideline guidelines for Government projects to encourage affirmative action in favour of women, men, youth and vulnerable groups	MGYS, MoDP	MDP project format	inadequate MDP project format	gender, youth, vulnearble groups and CC incorporated in project format (2019)	MDP project format	1.00
Encourage adaptation of climate relevant technologies in favour of	MCST, MGYS	number of technolgies adapted	to be established	5 technolgies adapted	MCST report	**10.0**

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
gender, youth and vulnerable groups						
Policy Statement 17: Promote the participation of the civil society						
Engage civil society in the implementation of Government adaptation programmes through strategic partnerships	sector ministries	xx number of partnership channeling yy % of the funding	limited partnerships	xx number of partnership channeling yy % of the funding	NCCC/ LMS reports	0.50
Policy Statement 18: Promotion of the participation of the private sector						
Engage PS in the implementation of Government adaptation programmes through PPPs	sector ministries	number of PPPS channeling yy % of the funding	limited PPPs	xx number of PPPs channeling yy % of the funding	NCCC/ LMS reports	0.50
Deliver trainings and capacity building programme for private sector on climate related issues, including climate finance, proposal formulation, threats and opportunities	LMS BEDCO,	number of PS accessing climate finance	No PS accessing climate finance	xx number of PS accessing finance	LMS reports	0.50
Encourage alternative livelihoods to reduce pressure on land and rangeland resources through SME and cooperative development	MSBDCM, BEDCO	xx number of SMEs and cooperatives established	ILO study on informal economic activities	xx number of SMEs and cooperatives established	BEDCO records	1.50
Pilot investmeNTns into alternative sustainable livelihood projects (focus on		xx number of SMEs and cooperatives		200 SME incubation and investment		6.00

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
biodiversity based products and eco-tourism)		invest in different production lines				
Policy Statement 19: Implement Educational, Training and Public Awareness programmes						
Public awareness programme	MCST, LMS	awareness among the general public	inadequate awareness among public on climate change	increased awareness	awareness survey	1.50
Review of the tool kit integrating CC in the national curriculum and upscaling to all schools	MoET, LMS, National Curriculum Development Centre, LCE, NUL	Number of schools	Pilot project moET 56 teachers	All relevant schools	MoET and NCD reports	0.50
Design and implement education, research and study program on climate change at all levels	MoET, LMS, NCD, LCE, NUL	Number of programme developed	No climate change program at tertiary level	1 program developed	Curriculum	10.50
Policy Statement 20: Promote research and development, innovation and technology transfer						
Incorporate Climate Change in the Science & Technology policy and Act for approval by Parliament	MCST	Updated S&T policy	draft policy of 2011	CC incorporated in policy and act	Policy document	1.10
Allocate share of funding for CC mitigation and adaptation of proposed Science and Innovation Fund	MCST	% of fund disbursed	no fund	% of S&I fund once operational	S&I fund records	0.50
Policy Statement 21: Mobilise of financial resources						

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Elaboration of strategy and plan for the mobilization of financial resources	MF, MDP, LMS, NCCC	climate finance mobilization plan	no plan available	climate finance mobilization plan	plan	0.30
Capacity building programme in MF/ MDP and line ministries to formulate project proposals for climate funding	MF, MDP,LMS, NCCC	10 bankable proposals for climate finance	limited capacity to attract climate finance	increased capacity to attract funds	Proposals	0.75
Implementing GCF readiness programme for establishing DNA capacity and NIE	MEM/ LMS	NIE established	no direct access	1 -2 accredited NIEs	LMS reports	0.30
Policy Statement 22: Enhance social security/ protection by managing climate induced migration.						
Establish frameworks (institutional and regulatory) for the management of climate related national and cross - border migration	Ministry of Defense and National security , Home Affairs, Social Development;	Institutional and regulatory frameworks established.	currently these are governed by investor and company policies Lesotho Land Act	Establish the legal and institutional framework for resettlement, including climate related resettlement	Legal acts, Institutional Mandates	0.75
Conduct climate related National Migration Assessment Mapping	Ministry of Defense and National security , Home Affairs, Social Development; BOS and Local Government, BOS,	Migration Potential Assessment Mapping	Lack of climate related National Migration Map	Climate related resettlement map	Climate related resettlement map	1.5
Develop a climate related National Migration Data Management system	Ministry of Defence and National security , Home Affairs, Social Development; BOS	National Migration Data Management System developed	Lesotho Migration Profile (UNICEF)	National Migration Data Management System developed	Migration data reports available	0.50

Strategic Action	Implementing entity	Indicator	Baseline	Target 2022	Means of verification	Estimated Total costs mln USD
Establish resilience building programmes in areas of high migration threat and resettlement programmes (access to services and infrastructure, livelihood and income generation diversification, safety nets, microfinance schemes, vocational training)	Ministry of : Home Affairs; Local Government; Public Works and Transport;	Resilience building programme established	Resettlement Action Plan and Livelihood restoration plans do not take into account climate induced vulnerabilities	5 climate related resettlements expected	10 resettled communities	5.00

4 ANNEXES

4.1 ANNEX 1: LIST OF TABLES

Table 4: Approaches for managing climate change risks

Overlapping Approaches	Category	Selected examples
Vulnerability and exposure reduction Adaptation Transformation	1. Human development	Nutrition; health facilities; social support structures.
	2. Poverty alleviation	Disaster risk reduction.
	3. Livelihood security	Livelihood diversification; increased decision-making power; changed cropping.
	4. Disaster risk management	Early warning systems; building codes and practices.
	5. Ecosystem management	Maintaining wetlands; watershed and reservoir management; maintenance of generic diversity.
	6. Spatial or land-use planning	Provisioning of adequate housing, infrastructure, and services.
	7. Structural/physical	**Technological:** Indigenous, traditional and local knowledge; efficient irrigation; conservation agriculture. **Ecosystem based:** Soil conservation; afforestation and reforestation; seed banks; gene banks; community-based natural resource management. **Services:** Essential public health services; enhanced emergency medical services. Engineered & built environment.
	8. Institutional	**Economic options**: Financial incentives; insurance; microfinance. **Laws & regulations:** Building standards & practices; laws to support disaster risk reduction. **National & government policies & programs**: Ecosystem-based management; community based adaptation.

Overlapping Approaches	Category	Selected examples
	9. Social	**Educational options**: Awareness raising & integrating into education; knowledge sharing & learning platforms. **Informational options:** Hazard & vulnerability mapping; early warning and response systems. **Behavioural options:** Migration; soil & water conservation; changed cropping, livestock & aquaculture practices.
	10. Spheres of change	**Practical:** Social & technical innovations **Political:** Supporting adaptation and mitigation **Personal:** Influencing climate change responses and assumptions

Source: IPCC, 2014a

4.2 ABBREVIATIONS

AMCEN:	The African Ministerial Conference on Environment
BoS:	Bureau of Statistics
BUR:	Biennial Updated Report
CBO:	Community Based-Organizations
CCIS:	Climate Change Policy Implementation Strategy
CCS:	Carbon Capture and Storage
CDM:	Clean Development Mechanism
CDR:	Carbon Dioxide Removal
COP:	Conference of Parties
CRM:	Climate Risk Management
CSM:	Crop Stress Management
DWA:	Department of Water Affairs
EU:	European Union
FAO:	Food and Agriculture Organization
FDI:	Foreign Direct Investments
GCF:	Green Climate Fund
GCM:	General Circulation Model
GDP:	Gross Domestic Product

GEF:	Global Environmental Facility
GHG:	Greenhouse Gases
GoL:	Government of Lesotho
HIV/AIDS:	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
ICM:	Integrated Catchment Management
ICT:	Information Communication Technology
IFF:	Investment and Financial Flows
INDC:	Intended Nationally Determined Contribution
IPCC:	Intergovernmental Panel on Climate Change
LHWP:	Lesotho Highlands Water Project
LMS:	Lesotho Meteorological Services
MEM:	Ministry of Energy and Meteorology
MFIs:	Multilateral Finance Institutions
MEAs:	Multilateral Environmental Agreements
MRV:	Measurement, Reporting and Verification
NAMA:	Nationally Appropriate Mitigation Action
NAP:	National Adaptation Plan
NAPA:	National Adaptation Programme of Action
NDC:	National Determined Contribution
NCCC:	National Climate Change Committee
NNCCPNCCP:	National Climate Change Policy
NGO:	Non-Governmental Organization
NSDP:	National Strategic Development Plan
NUL:	National University of Lesotho
PPP:	Public Private Partnership Programme
REDD+:	Reducing Emissions from Deforestation and Degradation
RFCs:	Reasons For Concern
RSO:	Research and Systematic Observation
SANREMP:	Sustainable Agriculture and Natural Resources Management Programme
SADC:	Southern African Development Cooperation

SDGs:	Sustainable Development Goals
SES:	Sustainable Energy Strategy
STI:	Science, Technology and Innovation
TNA:	Technology Needs Assessment
UNDP:	United Nations Development Programme
UNFCCC:	United Nations Framework Convention for Climate Change
WMO:	World Meteorological Organization

4.3 ANNEX 2: GLOSSARY

Adaptation actions: to put in practice physical or management agreements that respond to the opportunities or threats posed by climate change (CC), such as: resettling people or goods in safer locations, relocating installations to avoid the risk of flood or changing crop varieties to those better able to cope with the climate. Enterprise associations and professional bodies, as well as central and local governmental departments, should assist in this task.

Adaptation: the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

Adaptive capacity: the potential capacity or ability of a system, region or community to adapt successfully to the effects or impacts of climate variability or change.

Adverse effects of climate change: changes in the physical environment or biota resulting from CC, which have significant deleterious effects upon the composition, resistance or productivity of natural and managed ecosystems; the functioning of socioeconomic systems; and/or human health and welfare.

Carbon sequestration: the process of removing carbon dioxide from the atmosphere that occurs mainly in the oceans, forests and other systems in which organisms capture the gas through photosynthesis.

Climate Change (CC): to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. The UNFCCC, in its Article 1, defines climate change as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” The UNFCCC thus makes a distinction between climate change attributable to

human activities altering the atmospheric composition, and climate variability attributable to natural causes.

Climate-resilient pathways: are sustainable-development trajectories that combine adaptation and mitigation to reduce climate change and its impacts. They include iterative processes to ensure that effective risk management can be implemented and sustained.

Climate sensitivity: the degree to which a system is affected (adversely or positively) by climatic stimuli.

Climate vulnerability: the degree to which human and environmental systems react when experiencing a disturbance or stress. Usually it is described as a function of three main characteristics: degree of exposition to climate phenomena, climate sensitivity, and adaptive capacity.

Energy efficiency: reducing electricity use and emissions; as well as developing frequent energy audit programs to help companies to assess energy consumption and identify energy saving opportunities.

Exposure: the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.

Green economy: improvement of people's living conditions, well-being and social equity while significantly reducing environmental risks and ecological scarcities. At its simplest, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. In a green economy, growth in incomes and employment result from public and private investments that reduce carbon and other GHG emissions and pollution, enhance the efficient use of energy and other resources, and prevent the loss of biodiversity and ecosystems. The green economy is a vehicle for achieving sustainable and low-carbon development.

Greenhouse effect: GHGs in the atmosphere absorb a portion of the infrared radiation emitted by the Earth's surface. As a consequence, heat is trapped instead of being released into space. The greenhouse effect – within a certain range – is vital; it keeps the planet warm and ensures the maintenance of life. However, a stronger greenhouse effect could become catastrophic if it destabilizes the balance on the planet and gives rise to a phenomenon known as 'global warming' – an increase in the average temperature of the Earth's surface. The Intergovernmental Panel on Climate Change (IPCC), established by the United Nations and the World Meteorological Organization in 1988, in its latest report notes that most of the warming observed over the last 50 years, has most likely originated from the increase in the concentration of GHGs in the atmosphere.

Greenhouse gases (GHG): gaseous constituents of the atmosphere, both natural and synthetic, that absorb and re-emit infrared radiation. Examples include CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3.

Hazard: the potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources. In this report, the term *hazard* usually refers to climate-related physical events or trends or their physical impacts.

Impacts: effects on natural and human systems. In this report, the term *"impacts"* is used primarily to refer to the effects of extreme weather and climate events and of climate change on natural and human systems). Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system. Impacts are also referred to as *consequences* and *outcomes*. The impacts of climate change on geophysical systems, including floods, droughts, and sea level rise, are a subset of impacts called physical impacts.

Informal settlements: the peripheral areas of cities in which inhabitants live in housing that is substandard in terms of both the construction materials used and the state of preservation. These areas are also characterized by an almost total absence of ventilation; a lack of streets and systems for water supply and sewerage; insufficient lighting; lack of clean water, sanitation and drainage ditches, which results in the accumulation of water in rainy periods, lea- ding to increased exposure to infectious and water-borne diseases.

Low-carbon development: any intervention that promotes development and increases prosperity without compromising the environment. In other words, it involves the decoupling of in- creases in GHG emissions in economic development. This approach redefines the paradigm of development, and enhances resilience through innovative solutions.

Mitigation: any anthropogenic intervention that can reduce or control/prevent GHG emissions as well as increase the sink capacity for removing GHG from the atmosphere.

Resilience: the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation (learning) and transformation.

Reasons for Concern: illustrate the implications of warming and of adaptation limits for people, economies, and ecosystems. They provide one starting point for evaluating dangerous anthropogenic interference with the climate system. Five integrative reasons for concern provide a framework for summarizing key risks across sectors and regions: (1) unique and threatened ecosystems, (2) extreme weather events, (3) distribution of impacts, (4) global aggregate impacts and (5) large-scale singular events.

Risk: the potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and

hazard. In this document, the term *risk* is used primarily to refer to the risks of climate-change impacts.

Sink: any process, activity or mechanism that removes GHGs from the atmosphere.

Sustainable development: commonly defined as development that satisfies current needs without compromising the welfare of future generations.

Technology Development transfer: a wide range of processes that include the movement of knowledge, experience and equipment for the purposes of climate change adaptation and mitigation among different parties, such as the government, the private sector, financial, educational and research institutions and NGOs, as well as research educational institutions.

Vulnerability: the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.