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Promoting sustainable development; addressing climate change

Southern African Climate Finance Partnership

Lesotho Country Diagnostic

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Contents

Context

Climate context

Lesotho is extremely vulnerable to climate change, with high exposure to climate variability and extremes, which are expected to increase in frequency and intensity in the future. Over 85% of Lesotho's population is exposed to climate change risks, with vulnerability exacerbated by mountainous terrain and poverty. Climate change is expected to undermine development efforts by increasing the effects of drought, land degradation, desertification, and biodiversity loss (Lesotho Ministry of Natural Resources 2007). The country has suffered high levels of environmental degradation, including severe soil erosion. Climatic conditions are harsh, limiting the growing season for crops (Lesotho Ministry of Natural Resources 2000).

The trend analysis of temperature in Lesotho shows an increase in both annual maximum and minimum temperatures between 1968 and 2006, with minimum temperatures warming more than maximum temperatures, and the most rapid warming in the early 1980s. Climate change simulations show temperatures increasing by around 1C by 2030, 1.5C-2C by 2050, and 2.5C-3.5C by 2080; winter rainfall shows strong decreases, with no change in summer and autumn rainfall, and a gradual increase in spring rainfall (Dejene et al. 2011).

Because of Lesotho's extremely mountainous topography, economic activity is largely confined to the lowlands (17% of total area), and the mountainous regions (59% of total area) are only suitable for grazing and hydro power (Lesotho Ministry of Natural Resources 2000).

Socioeconomic context

Lesotho has a low GDP per capita (US$1,126), and it is highly dependent on external support. Although Lesotho's economy grew at 4% per capita annually over the decade to 2015, it remains one of the poorest and most unequal countries in the world, with poverty remaining high in rural areas. Outside the well-paying private sector, wages are typically too low to lift people out of poverty. Mining has grown significantly, but there is limited job-creation potential in the sector (World Bank Group 2015). GHG emissions per capita are 0.96tn CO2eq. Total national emissions are 0.004% of the global total.

Lesotho is over-reliant on rainfed agriculture, and has a large poor rural population engaged in undiversified subsistence farming and migrant labour. Issues include high population pressure on arable land and natural resources, fragile and degraded soils, high levels of food insecurity and poverty, and lack of infrastructure (Dejene et al. 2011). Lesotho's economy depends on light manufacturing (textile, clothing, and leather), customs duties from the Southern African Customs Union, and agriculture (wool, mohair, and livestock). Water exports to South Africa, and remittances from Basotho in South Africa, also contribute significantly (Lesotho Ministry of Energy Meteorology and Water Affairs 2013).

Intended Nationally Determined Contribution

The Ministry of Energy and Meteorology submitted Lesotho's Intended Nationally Determined Contribution (INDC) in 2015 (Lesotho Ministry of Energy and Meteorology 2015). It was converted to a Nationally Determined Contribution (NDC) in 2017. The NDC contains greater detail than most other SADC countries, especially on sector specific on emissions data.

Mitigation

Lesotho's GHG emissions are low, due to its predominant dependence on hydropower. Its three most significantly emitting sectors are agriculture (63%), energy (31%), and waste management (6%). Emissions of other GHGs are negligible, but these will be monitored and reported on in the future.

Lesotho's unconditional and conditional targets are a reduction of GHG emission by 2030 compared to BAU by 10% and 35%, respectively. The main opportunities for mitigation are in energy efficiency and demand management, coupled with increasing investment in a renewable energy programme for the electricity, building construction, and waste sectors.

Agricultural emissions result from: enteric fermentation and manure management of domestic livestock; and intensive crop production and inorganic fertiliser use, which are expected to continue increasing substantially.

Energy emissions were mostly due to residential fuel combustion from use of biomass, coal, LPG and paraffin (51%); followed by combustion of liquid fossil fuels in transport (29%). Energy sector emissions increased consistently, reaching 30% between 1994 and 2000. The major assumption under the mitigation scenario in the energy sector is the implementation of Lesotho Energy Policy (2015), and Draft Lesotho Renewable Energy Policy (2013). The energy sector will require additional investments – US$15 million by 2020 and US$20 million by 2030 – in energy-efficient equipment, grid extension, and rural electrification projects (off-grids and mini-grids). These investments require external financial support.

Potential energy mitigation measures:

- Improve energy efficiency by 20% by 2020.
- Increase electricity coverage/access to 35% of households by 2015, 50% by 2020, and 80% by 2030.
- Increase renewable energy sources by 200MW by 2020: 35 wind by 2017; 40MW solar by 2018; and 125 hydropower by 2025.
- Distribute efficient stoves with a penetration rate of 30% by 2030.
- Reduce the use of wood to 10% of fuels used for heating by 2030.
- Replace fuel-wood with LPG at a rate of 10% per annum from 2020 to 2030.

Promising transport mitigation measures would require additional investment of US$1.5 million by 2020 and US$2 million by 2030, and include:

- Vehicle efficiency, and investment in fuel-efficient vehicles.
- Shift from private to public transport.

The waste sector is divided into two distinct sectors: solid waste management; and waste water handling. The bulk of emissions are from industrial wastewater handling. GHG emissions from the sector have doubled since 1994. There has been increasing per capita solid waste generation among urban populations; disposal of solid waste to relatively deeper and more sanitary landfill sites is becoming common practice in urban waste management.

Potential waste mitigation measures:

- Introducing targets for waste reduction (e.g. % of waste sent to landfill), and recycling.
- Reducing traditional use of firewood in households with sufficient livestock, by installing biogas digesters to generate cooking gas

Given that biomass consumption remains the main source of energy in domestic and small-scale commercial use, substitution away from the fuel source is expensive, and thus conditional on external finance. The cost of reforesting 120,000ha between 2015 and 2030 would amount to US$24 million. Forestry emissions will be

tackled through Reducing Emissions from Deforestation and Forest Degradation (REDD) initiatives. Lesotho intends to adopt the SADC REDD Strategy (2012-2015). Potential forestry mitigation measures:

- Replant trees in degraded forestland.

Adaptation

Specific barriers to adaptation in Lesotho are:

- Technological and research capacity: Lack of tools and techniques – including national research capacity to build basic datasets, technical analysis, and publications – may hinder adaptation;
- Economic and financial: Rural low-income subsistence farming households and communities experience the urgency of adaptation needs, and Lesotho lacks capital to finance adaptation technologies such as improved crop yield varieties and diversification of livelihoods; and
- Institutional: Lesotho's commons institutions restrict the choice of livelihood strategies, by favouring some groups over others, such as those who own livestock over those who don't.

The NDC identifies the need to:

- Build capacity with experts and stakeholders in the preparation and collection of data to enhance information management, ownership, information exchange, and dissemination of information sharing within and across sectors;
- Create systemic enabling working environments for the implementation of climate change activities, with regard 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, taking into consideration IPCC requirements by carrying out new studies to upgrade the datasets, and then making use of remotely sensed data and training on GIS;
- Obtain data from satellite / remote sensing, including land cover data, and then designing consistent reporting formats for the reports;
- Coordinate data pools to establish data archiving and sharing protocols; and
- Support research in climate change.

The following indicators will be used in the monitoring and evaluation (M&E) of Lesotho's adaptation, conditional on enabling M&E finance:

- Change in vulnerability level;
- Number of people benefitting from adaptation activities;
- Degree of integration of climate change adaptation into sectoral policies and plans; and
- Public expenditure on adaptation.

Gender

Unusually, Lesotho's NDC includes gender considerations:

- Women are more vulnerable to climate change, because of their relationship with natural resources: they are responsible for family food security through food collection, crop production, meal preparation, piggeries, and poultry farming. Household responsibilities – including child-rearing, domestic management and meal preparation – often require women to work longer hours than men. Climate change adaptation interventions should include measures to reduce women's workload.
- The formative years of the boy child are occupied by herding livestock, to the detriment of their education. Climate change may push good grazing further from villages, thereby affecting boy children negatively. In addition, extreme weather events like heavy snow will increase the risk of herding in remote cattle posts.

Policy and planning documents

Lesotho does not have an official medium- to long-term national climate change adaptation plan. However, there is a formal commitment to developing a new National Climate Change Policy and Sustainable Energy Policy, with support from the European Union.

GHG inventories based on IPCC guidelines and methodologies will remain the foundation of emissions accounting. These are currently reported and included in National Communications, and in the future will be reported and included in Biennial Update Reports.

First and Second National Communication to the UNFCCC

Lesotho ratified the UNFCCC in 1995. The Ministry of Natural Resources submitted Lesotho's Initial National Communication (INC) in 2000, with financial assistance from the Global Environment Facility (GEF) and technical assistance from the United Nations Environment Programme (UNEP). Weak data collection and unsystematic presentation of data made Lesotho's inventory of greenhouse gas emissions inconclusive for the purposes of the INC, although emissions were certainly low as a share of global totals. The INC highlighted water shortages that Lesotho may face in the future, and the potential conflict with South Africa that this may lead to in the long-term. INC highlighted low levels of forestation, but the potential for afforestation expected to result from the changed climate of the future (Lesotho Ministry of Natural Resources 2000).

Following the INC, Lesotho prepared a Technology Needs Assessment for the LULUFC sectors in 2002, and a NAPA, which identified which identified adaptation needs in 2007. The Ministry of Energy, Meteorology, and Water Affairs submitted Lesotho's Second National Communication (SNC) in 2013. The SNC lists several potential measures and strategies for adaptation (enhancing agricultural productivity; planting trees; improving nutrition; accessing reliable and user-friendly sources of energy; arresting land degradation through appropriate soil and water management and conservation; and reducing incidences of insect pests and diseases) and mitigation (revision of electrification target to allow more Basotho access to clean energy for lighting, heating and cooking; dissemination of efficient stoves in households to reduce the use of firewood and vegetable waste; and dissemination of solar home systems to reduce the use of paraffin for lighting) (Lesotho Ministry of Energy Meteorology and Water Affairs 2013).

Vision 2020

Lesotho's Vision 2020 was adopted in 2000, as a statement to guide all development goals, objectives, and aspirations in the medium- to long-term. The vision statement overlapped with Lesotho's accession to the Millennium Development Goals (MDGs).

Poverty Reduction Strategy (PRS) 2005-2007

The PRS was aimed at fulfilling Vision 2020. It sought to reduce poverty from 57% in 2003, to 29% in 2007. The PRS ended in 2008.

National Strategic Development Plan (NSDP) 2012-2017

The NSDP was aimed at fulfilling Vision 2020, building on the foundation set by earlier documents including the Interim National Development Framework. It embraced the key poverty targets of the PRS, while seeking to consolidate all development goals with an associated Public Sector Investment Programme. One of the NSDP's strategic goals was to reverse environmental degradation and adapt to climate change, through the following (IMF & Government of Lesotho 2012):

- Reverse land degradation and protect water sources through integrated land and water resource management;
- Improve national resilience to climate change;
- Promote biodiversity conservation;

- Increase clean energy production capacity and environmentally friendly production methods, and explore opportunities for carbon trading;
- Improve land use and physical planning, increase densification, and ring-fence towns to avoid human encroachment on agricultural land and fragile ecosystems;
- Improve delivery of environmental services, including waste and sanitation, and environmental health promotion; and
- Improve coordination, enforcement of laws, information and data for environmental planning, and increase public knowledge and protection of the environment.

The NSDP has outlined the following strategies relevant to climate change resilience:
- Integrating climate change into sectoral plans and programmes;
- Climate proofing investments by upgrading standards for infrastructure development;
- Improving access to, and use of climate change adaptation technology; and
- Improving environmental and climate change governance through vulnerability assessments to be used for medium- to long-term forecasting, policy, and planning.

Draft Lesotho Renewable Energy Policy (2013) and Lesotho Energy Policy (2015)

The Policy was adopted pursuant to the aspirations of the NSDP. It aims to make energy universally accessible and affordable, in a sustainable manner, with minimal negative impact on the environment. In particular, it sets goals to reduce fuel wood usage in national energy consumption. The Policy further provides for climate change mitigation, through energy efficiency and the promotion of renewable energy.

Draft Strategic Plan for the Ministry of Energy and Meteorology 2015/16-2020/21

The Plan was adopted pursuant to the aspirations of the NSDP. It includes key strategic intentions in both climate change mitigation and adaptation, including national energy initiatives.

National Rangelands Management Policy (2013)

The Policy was adopted pursuant to the aspirations of the NSDP. It seeks to guide range and natural resource management.

Forestry Act (1998) and National Forest Policy (2008)

Lesotho's Government has invested heavily in tree planting and small woodlot reserves over the last 20 years. Pursuant to this policy, the Forestry Act (1998) was promulgated and a new National Forest Policy launched in 2008 to pursue sustainable forest management.

A key objective of the National Forestry Policy (2008) is to increase tree cover from 1% to at least 5% (152,000) by 2020. However, deforestation of 0.5% per annum led to the loss of 200ha between 1990 and 2010; this deforestation equates to a reduction in emissions reduction potential of 38,902t CO2eq.

National Adaptation Programme of Action (NAPA) (2007)

Lesotho's Ministry of Natural Resources produced at NAPA in 2007 (Lesotho Ministry of Natural Resources 2007). A sectoral climate change vulnerability assessment was carried out on key sectors: agriculture; water resources; forestry; rangelands; and health. The NAPA outlines future adaptation needs to address projected climate change. In the absence of an official national adaptation plan, Lesotho's list of prioritised climate change adaptation plans remains the best indication of national adaptation intentions.

	Priority project title	**Indicative cost (US$)**
1	Improve resilience of livestock production systems under extreme climatic conditions in various livelihood zones in Lesotho	2,980,000
2	Promoting sustainable crop-based livelihood systems in Foothills, Lowlands, and Senqu River Valley	4,235,000
3	Capacity-building and policy reform to integrate climate change in sectoral development plans	1,260,000
4	Improvement of an early warning system against climate induced disasters and hazards	920,000
5	Securing village water supply for communities in the Southern Lowlands	1,170,000
6	Management and reclamation of degraded and eroded land in the flood prone areas (Pilot Project for Western Lowlands)	966,000
7	Conservation and rehabilitation of degraded wetlands in the Mountain Areas of Lesotho	690,000
8	Improvement of community food security through the promotion of food processing and preservation technologies	620,000
9	Strengthening and stabilising ecotourism-based rural livelihoods	N/A
10	Promote wind, solar, and biogas energy use as a supplement to hydropower	N/A
11	Stabilising community livelihoods which are adversely affected by climate change through improvement of small-scale industries	N/A

Other relevant documentation includes:

- National Environment Act (2008)

Climate finance stakeholders

Ministry of Energy, Meteorology, and Water Affairs

The Ministry of Energy, Meteorology, and Water Affairs is the NDA to the GCF. The Acting Director of the Lesotho Meteorological Services, Mrs Mabafokeng Felesiah Mahahabisa, is the FP to the GCF. The LMS, under the Ministry of Energy and Meteorology, is the coordinating agency charged with monitoring and reporting on weather, climate, and climate change issues. The LMS is also the focal point for planning and coordinating activities for Lesotho's commitments under the UNFCCC.

National Climate Change Committee (NCCC)

The NCCC was established in 2013 to coordinate climate change issues in the country; it serves as an advisory board to the LMS.

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