



Integration of Natural Capital Accounting Into Lesotho's Policy And Decision Making For Sustainable Development

Part I: Project Information

GEF ID

10979

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT No

NGI No

Project Title

Integration of Natural Capital Accounting Into Lesotho's Policy And Decision Making For Sustainable Development

Countries

Lesotho

Agency(ies)

UNEP

Other Executing Partner(s)

by the Ministry of Water, Ministry of Forestry, Range and Soil Conservation and Ministry of Tourism, Environment and Culture

Executing Partner Type

Government

GEF Focal Area

Biodiversity

Taxonomy

Focal Areas, Biodiversity, Mainstreaming, Biomes, Wetlands, Financial and Accounting, Natural Capital Assessment and Accounting, International Waters, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Stakeholders, Beneficiaries,

Communications, Public Campaigns, Awareness Raising, Local Communities, Type of Engagement, Participation, Gender Equality, Gender results areas

Sector

Mixed & Others

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 0

Duration

36 In Months

Agency Fee(\$)

116,711.00

Submission Date

4/13/2022

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-3	GET	1,228,539.00	3,670,000.00
Total Project Cost (\$)		1,228,539.00	3,670,000.00

B. Indicative Project description summary

Project Objective

"To mainstream natural capital into integrated watershed management through application of natural capital accounting in Lesotho"

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
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Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
1. Building institutional capacity on natural capital accounting	Technical Assistance	1.1 National Capital Accounting (NCA) system adopted, including institutional mandates, and increased institutional capacity	<p>1.1.1. Coherent and consistent methodology, institutional arrangements and national system design developed for NCA in Lesotho</p> <p>1.1.2. Staff training and institutional capacity building on natural capital accounting and valuation of ecosystem services conducted</p> <p>1.1.3. National Spatial Database (NSD) developed to compile (terrestrial) accounts with support of pilot areas to test and refine the NSD</p> <p>1.1.4. Road Map for Advancing NCA in Lesotho developed, consolidating a future vision for NCA in Lesotho</p>	GET	383,000.00	1,150,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 2: Mainstreaming natural capital through application of NCA into integrated watershed management	Technical Assistance	2.1 "Natural capital mainstreamed into integrated watershed management through application of NCA"	<p>2.1.1 Establishment of water and land accounts for Upper Senqu Catchment</p> <p>2.1.2 Making use of water and land accounts to design operational strategies and guide integrated water catchment policy for the Upper Senqu Catchment</p> <p>2.1.3 Policy dialogue conducted with key stakeholders on mainstreaming of natural capital through the use of NCA in integrated watershed management</p>	GET	533,854.00	1,600,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
3.Outreach and knowledge management for promotion of NCA	Technical Assistance	3.1 Better understanding on the importance of natural capital and NCA for sustainable development in Lesotho	<p>3.1.1 Outreach and knowledge products developed to support the promotion of NCA</p> <p>3.1.2 Awareness raising of NCA and its possible applications conducted</p> <p>3.1.3 Knowledge sharing events conducted to enable the networking with stakeholders to facilitate further uptake and development of NCA</p>	GET	150,000.00	430,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
4. M&E		4.1 An Integrated and effective monitoring and evaluation system in place	4.1 Project gender-disaggregated M&E system enables tracking of project progress, performance and specifically capturing best practices to enable replication of NCA 4.2 Mid-Term Review conducted 4.3 Terminal Evaluation conducted and 4.4 The project Exit Strategy is developed	GET	50,000.00	140,000.00
Sub Total (\$)					1,116,854.00	3,320,000.00

Project Management Cost (PMC)

	GET	111,685.00	350,000.00
Sub Total(\$)		111,685.00	350,000.00
Total Project Cost(\$)		1,228,539.00	3,670,000.00

Please provide justification

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Ministry of Tourism, Environment and Culture	In-kind	Recurrent expenditures	1,500,000.00
Recipient Country Government	Ministry of Forestry, Range and Soil Conservation	In-kind	Recurrent expenditures	900,000.00
GEF Agency	UNEP (TEEB, SEEA, Regional Office)	In-kind	Recurrent expenditures	270,000.00
Recipient Country Government	Ministry of Development Planning/Bureau of Statistics (BOS)	In-kind	Recurrent expenditures	1,000,000.00
Total Project Cost(\$)				3,670,000.00

Describe how any "Investment Mobilized" was identified

Investment mobilized was defined based on amount of in-kind and grant contribution from the executing ministry, other contributing government institutions. The different stakeholders were consulted on the monetary value of their contribution using market-value prices for the services they will provide. Where 'investment mobilized' has been indicated, it refers to co-financing that excludes recurrent expenditures, as defined in the guidelines. Lesotho Government investments mobilized for activities being carried out by contributing agencies and ministries are extrapolated in the MTEF project/programme-based budget allocations. Also, Funds that need to be budgeted for annually or grants received from donors are considered as investment mobilized

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Lesotho	Biodiversity	BD STAR Allocation	1,228,539	116,711	1,345,250.00
Total GEF Resources(\$)					1,228,539.00	116,711.00	1,345,250.00

E. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

50,000

PPG Agency Fee (\$)

4,750

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Lesotho	Biodiversity	BD STAR Allocation	50,000	4,750	54,750.00
Total Project Costs(\$)					50,000.00	4,750.00	54,750.00

Core Indicators

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
93521.00	0.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
93,521.00			

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted
Core Indicator Worksheet Lesotho NCA	

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	2,256			
Male	2,402			
Total	4658	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

The project will indirectly contribute to the improved management of the Upper Senqu Catchment through facilitating technical and institutional capacity building to implement and apply natural capital accounting for land and water and ecosystems accounts for selected ecosystem services. This will be implemented in pilot sub-catchments with relevance for the national economy, due to the natural capital present in these areas. Information provided by the natural capital accounts will serve as input for integrated watershed management development, thus contribute towards enhanced understanding of the contribution of natural capital to the economy and the livelihoods of the communities dependent on these areas

The Project contributes to several of the Aichi biodiversity targets under the Convention on Biological Diversity, notably Target 2, which is focused on integrating biodiversity values into development and poverty reduction strategies and planning processes including national accounting systems; as well as Aichi Targets 1, 4 and 19.

Part II. Project Justification

1a. Project Description

part ii: project justification

1a. *Project Description*. Briefly describe:

1.1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description);

Lesotho's Natural Capital providing a critical livelihood source

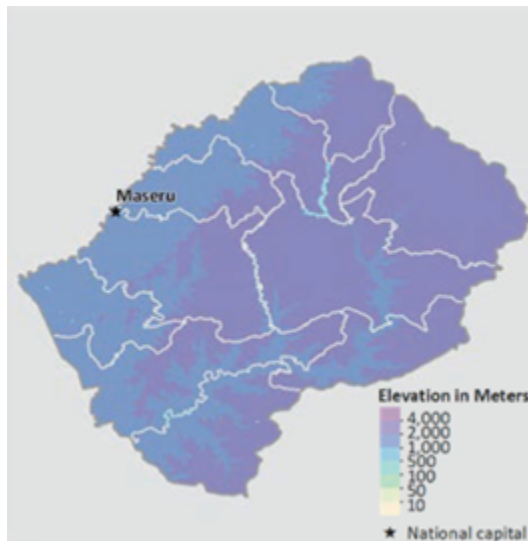


Figure 1: Altitude map of Lesotho Source: World Bank (2021), *Climate Risk Country Profile, Lesotho*

The Kingdom of Lesotho (henceforth referred to as Lesotho) has made good progress in reducing poverty and in growing the economy for the past two decades (GDP growth at 1.13 per cent between 2015-2020). Lesotho is a small[1], mostly mountainous, and largely rural country of about 2.2 million people[2], completely surrounded by South Africa. Lesotho is one of the least developed countries in the world and natural resources constitute the primary source of livelihood for the majority of the Basotho population. The entire country has a relatively high elevation varying from 1,388 m to 3,482 m above sea level. Poverty is not only high but also deep—and the depth has increased over time, making Lesotho one of the most unequal countries. A poverty gap of about 30 percent indicates that substantial growth would be needed to lift a majority of the poor out of poverty[3]. Lesotho's poverty stagnation

could be attributed to a decline in remittances and a still large dependence on subsistence farming among many households[4]. 50 per cent of the population still lives below the national poverty line (US\$1.65/day) and while urban poverty dropped to 27 per cent, rural poverty stands at 61 per cent (rural urban divide)[5]. In 2002 the State of the Environment Report stated: 'To absorb the pressure brought about by poverty (?), a lot of people resort to agriculture for their survival such that in spite of the declining agricultural productivity, approximately 85% of the population still depends partly or fully on agriculture for their livelihood.' Presently, two decades later, agriculture remains the leading source of livelihood for rural people with 70 per cent of households depending on it. The sector employs 44 per cent of the active population.

Figure 1: Altitude map of Lesotho Source: World Bank (2021), Climate Risk Country Profile, Lesotho

More than 70 percent of the population lives in rural areas, where three out of every four people are engaged in farming, herding, or both. Because labor is much less productive in agriculture than in other sectors, the economic contribution of agriculture is small, despite the large number of agricultural workers[6]. Agriculture's contribution to GDP has declined significantly over the past three decades?from 21.4 percent in 1982 to 7.5 percent in 2013.

Water as key natural resource

Minerals and water are considered key natural resources for Lesotho and its economy. Mining has become an important source of export revenues. The sector includes diamond mines in commercial production and Lesotho also produces sandstone, and it is also believed to have reserves of uranium, coal, gas, and copper. The combination of high altitude, abundance of water, and geographic proximity to major demand centers in southern Africa makes water central to long-term economic growth. Within this context, the water sector contributes roughly 10 percent to overall GDP, a large portion of it derived from revenues associated with the Lesotho Highlands Water Project (LHWP), one of the world's most ambitious water-transfer projects. The LHWP has brought significant development gains to Lesotho, allowing the country to transform water resources into export revenues for poverty reduction and economic stabilization. Lesotho is one of the richest countries in water resources in southern Africa.

The State of the Environment Report[7] (NES, 2002) affirmed the notion that water is the most valuable Lesotho's natural resource. It is a key determinant of economic growth and a resource that must be carefully managed as part of an environmentally sustainable development. Lesotho's natural renewable water resources exceed by far its national demand, leading to water export to South Africa (780 million m³ annually)[8]. Lesotho's ability to export water remains a significant contributor to its GDP; estimated to contribute approximately 10% in 2018[9]. Nevertheless, there are severe water shortage problems due to fact that temporal and spatial distribution is not equal in certain areas. For surface water sources, which are mostly direct river abstractions, variability of flows and lack of regulation facilities leads to seasonal shortages. Groundwater sources are generally smaller if explored in perched water tables, and a lack of sufficient capacity to drill deeper means that some of these boreholes are often overused leading to local depletion and a shortfall in supply.

The country is drained by four major river systems[10] - the Senqu (Orange) and Mokhotlong (Caledon) originating from the Mount Aux Sources in the Northeast along the Drakensberg and Makhaleng and Maphutseng River Systems originating from the central Maloti and flow in a South Westerly direction into the Republic of South Africa (RSA). Remarkably, fifty nine percent of the Orange River Basin lies in South Africa and the remainder in Lesotho, Namibia and Botswana. However, 46 percent of mean annual runoff is generated from Lesotho, upstream, of the basin from just 3 % of the land area.

Pollution and rates of ground water depletion and the efficiency of water treatment plants to meet demand affect water resources quality and quantity. Poor land management practices and infrastructure development have serious negative impacts on water resources. These practices degrade wetlands capacity to regulate and purify flows. Sediment yield from accelerated soil erosion renders high water

treatment costs and potentially damages hydropower potential. The causes of water resources pollution are overgrazing, soil compaction, deforestation and inappropriate land utilisation and cultivation. These factors affect infiltration capacity of in situ soils within catchments. High overland flow processes dominate and there-fore increase sediment yield in streams and rivers.

Valuable mountain ecosystems

The total number of species recorded for Lesotho is 4,694 and compares well with the neighbouring Free State Province of South Africa, whose land area is four times the land area of Lesotho, with 3,487 different species[11]. The mountains of Lesotho are a fragile ecosystem and are globally important as a centre of endemism, sources of freshwater with unique wetland systems, preferred areas for recreation and as places of cultural significance. They contain diverse biota with a high concentration of endemic species and several rare and endangered species. Lesotho's biodiversity resources in the Drakensberg and Highland areas have great potential for tourism.

Vegetation cover constitutes about 70 percent of Lesotho's total land surface with grassland, which is primarily used for livestock grazing, comprising 61% including the invasive *Chrysocoma* sp. (12%), shrublands (8%), and mires (0.1%) and less than 1% under forest cover (Chakela, ed. 2000). Other land categories are shallow rockland (5%), residential areas (2%) and cultivated areas including woodlots (25%) (Chakela, ed. 2000).

Increased human induced pressure on ecosystems

The State of the Environment Report (NES, 2002) concluded that aquatic and terrestrial ecosystems are being degraded at an alarming rate, mostly by human-induced factors. Loss of habitats, extinction of species and reduction in genetic variability can directly be linked to human behaviour. The increases in population density coupled with livestock population pressure have serious implications on the country's natural resources and consequently environmental degradation. Agriculture, using improper agricultural practices, has placed a tremendous pressure on indigenous trees and shrubs. Pollution, invasion of exotic species and overexploitation have contributed to an increase in the number of threatened plant species, and in low diversity in the country's fauna especially in fish, reptiles and amphibian species.

One basic constraint is the scarcity of high-quality land. Almost 70 percent of the country's land area is classified as agricultural, but only about 10 percent is suitable for crop cultivation. The rest is low-quality land suitable only for extensive livestock grazing[12]. *A second constraint is weather*. Many parts of the country are subject to extreme temperature fluctuations and highly variable rainfall, making rainfed crop cultivation and even livestock production extremely risky.

Climate and climate change

Lesotho's climate is classified as subtropical temperate with the altitude giving it some alpine characteristics that distinguish it from the rest of the sub-continent (NDC, 2021). Winters are dry and cold while summers are hot and humid. Temperatures are highly variable, on diurnal, monthly and annual time scales, and are generally lower than those of other inland regions of similar latitudes in larger landmasses both in the northern and southern hemispheres. Annual precipitation ranges from as low as 500 mm in the Senqu River Valley area to as high as 1200 mm in a few localities part of the Highlands region. The country experiences 85 percent of its precipitation between October and April and the peak rainfall period is from December to February. Normal annual rainfall averages 750 millimeters but varies considerably among different regions of the country

Climate projection analysis results indicate (NDC 2021) a general warming trend of temperatures countrywide during the baseline period (1971-2000) and across all future periods (2011-2100). The models' outputs suggest that climate change has been happening over the past three decades. The plausible increase in annual maximum and minimum temperatures simulated by the models is also reflected across all seasons. The increasing trends in temperature during the historic period are weak but statistically significant for all the seasons. Rainfall on the other hand, shows a high spatial

variability which is also higher in magnitudes relative to the established inter-annual variability for the region. The highest total precipitation accumulation during the covered period is in the Mountains while the Lowlands have the lowest total precipitation accumulation.

accumulation.

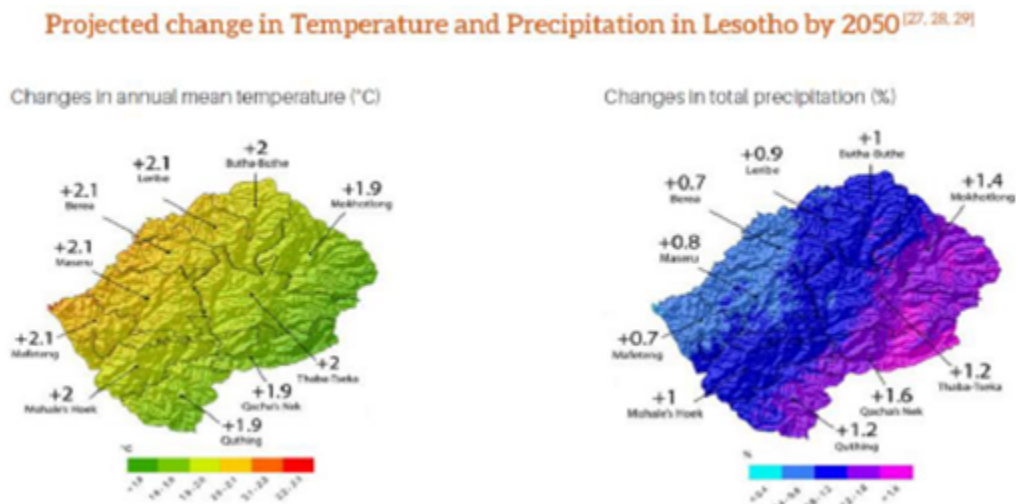


Figure 2: Projected change in temperature and precipitation. Source: Climate Smart Agriculture profile for Lesotho, <http://documents.worldbank.org/curated/en/866541527750717859/pdf/BRI-p165232-PUBLIC-CSAProfileLesothoFinal.pdf>

National climate change simulations predict temperatures increasing from 1.5°C to 2°, see Figure 1. Recurrent droughts will result in reduced water availability for a predominantly rain-fed agriculture. Other potential impacts of climate change include crop failures due to heat and drought stress, unpredictable onset of rains, reduced planting area, and increased susceptibility to pests and disease.

In line with global trends, Lesotho is experiencing an increase in mean annual temperature as a result of climate change. Total annual rainfall has reduced slightly on average in the past 30 years (IFAD/WFP 2018) but is expected to slightly increase in future. Of greater concern are fluctuating rainfall patterns. Changing rainfall patterns are also strongly related to the El Niño/Southern Oscillation phenomenon which fluctuates between three phases: neutral, La Niña, and El Niño. Climate shocks caused by both El Niño and La Niña negatively impact agricultural productivity in Lesotho.

Climate change effects on ecosystems: Mountain ecosystems provide services such as freshwater, timber, medicinal plants, and protect the surrounding Lowlands from hazards such as landslides and flooding[13]. Climate change in Lesotho is likely to result in a shift in ecosystem boundaries, including changes in species composition and biodiversity. Furthermore, degraded ecosystems are more sensitive to climate-related hazards such as flooding and landslides. Therefore, climate change will reduce the capacity of mountain ecosystems to generate ecosystem goods and services for the benefit of local communities, as well as increasing the exposure of local communities to hazards such as floods, landslides, drought and food insecurity. The already degraded natural resource base of the country is under increasing pressure due to the impact of climate change (characterized by irregular rainfall, droughts, storms, abnormal temperature patterns, floods, hail and frost), which threatens the livelihoods of vulnerable communities across the country. Drier and warmer weather also decrease snowfalls and the availability of water which is a major source of foreign revenue.

Climate change effects on water resources: The projected changes in rainfall and temperature will result in [14]: i) increased flooding; ii) reduced rainwater infiltration; and iii) increased erosion. Areas which are bare or degraded (e.g. as a result of deforestation or overgrazing) are particularly prone to soil erosion. In addition to the reduced stability of eroded slopes, one of the major negative effects of soil erosion is the reduced rate of infiltration of water into the soil profile. The result of reduced rainfall infiltration is a reduced rate of groundwater recharge as well as an increased rate of surface water runoff. During heavy rainfall periods, the reduced rate of infiltration can result in flooding in downstream and low-lying areas. Therefore, the degradation of watershed areas and other sensitive ecosystems results in multiple negative impacts on water resources. A decline in groundwater levels will reduce the availability of safe drinking water for people and livestock. Therefore, rural communities who are dependent on groundwater for drinking and cooking will be particularly vulnerable to the predicted effects of climate change.

Climate change effects on agriculture: The majority of agriculture in Lesotho is practised using rainfed cultivation methods. It is anticipated that the predicted changes in rainfall and temperature will reduce the total area of arable land for rainfed cultivation, which already has reduced substantially over the last decades, as well as reduce the duration of the growing season. It is predicted that climate change will result in substantially decreased agricultural production in the Lowlands, Foothills and the Lower Senqu River Basin [15]. The aforementioned areas are the most densely populated and cultivated in the country. The predicted effects of climate change will therefore have severe impacts on local livelihoods and national food security.

Lesotho's extensive land degradation, geographic characteristics and the socio-economic conditions make it one of the countries that are most vulnerable to climate change-related impacts, especially for rural populations. Thus, it is important that there is a clear understanding of the possible impacts of climate change on land degradation and soil erodibility to be able to plan and implement adaptive measures and mitigation strategies that equip the nation to better deal with the impacts of climate change. The country's current vulnerability also stems from the fact that its economic growth is dependent on climate-sensitive sectors which are subject to highly variable precipitation. In addition to variable climate and climate-sensitive economy, the majority of Lesotho's population is dependent on rain-fed subsistence agriculture coupled with the fact that these communities do not have sufficient resources to address the loss of soil fertility and climate variability. The country is expected to experience increased frequency and intensity of droughts, heavy rains and increased temperatures in all future periods. The temperature increases experienced in Lesotho have led to hydrological losses, which impact or change the quantity and quality of water resources. As such, there is need to optimize water resources development, equitable usage and management plans to sustain livelihoods of Basotho without comprising the sustainability of vital natural ecosystems.

Without adaptation, climate change could generally be detrimental to agriculture. There is evidence that climate change has already negatively affected crop yields in Lesotho. There has been a decrease in both the area planted and the yield of most important cereal crops due to recurring droughts in the last few years. Furthermore, the livestock sector, which also plays an important role in Lesotho's economy through wool and mohair production, has also been declining due to climate change.

Lesotho's environmental problems threaten its natural capital and its ability to achieve sustainable development and cut across the GEF focal area of biodiversity and in particular the programming direction BD1-1: Mainstream biodiversity across priority sectors as well as landscapes and seascapes and in particular. Natural Capital Accounting and Assessment is one of the nine entry points to mainstream biodiversity across sectors and within production landscapes [16].

The heavy reliance on natural resources for the economic development and its potential impact on natural capital in the country has yet to be accounted for. Some of the related **root causes and threats** to biodiversity and natural capital resources and (ecosystem) services in the Lesotho include:

Biodiversity richness under threat

The Kingdom of Lesotho contains some 70% of the Drakensberg-Maloti Mountains, recognized as the Eastern Mountains "Centre of Biodiversity and Endemism" of southern Africa. The Mountains, a World Heritage Site, have globally significant plant diversity, with unique habitats and high endemism. The global biodiversity significance in Lesotho is primarily floral and is threatened primarily by continuing rangeland degradation (UNDP, 1999[17]). The mountain grasslands and heathlands are exceptionally rich in biodiversity. However, they are also heavily over-grazed with severe erosion, loss of watershed capacity, loss of preferred species with an invasion of woody shrubs, and a worsening livelihood for pastoralist people. This degradation has been greatly exacerbated by recent human population growth.

The Drakensberg Mountains of KwaZulu-Natal and the adjacent Maloti Mountains of Lesotho form an area of outstanding natural beauty and a recognized centre of diversity and endemism, with extensive zones of Afro-Alpine and Afro-Montane vegetation, unique wetland habitats and high levels of endemism. High mountain systems are recognised as biogeographical islands, and typically support plant and animal communities found nowhere else. The highlands of Lesotho and the Drakensberg range are no exception with the Lesotho Mountains constituting the largest part of the Eastern Mountains "Biodiversity Hotspot" of Southern Africa. Seleteng-Kose et al. (2021) state that the flora of the hotspot is estimated as 1,750 species with 30% endemic and that the area is recognised as one of southern Africa's eight hot-spots of botanical diversity as indexed by its species richness and endemism (Cowling & Hilton-Taylor 1994). Van Wyk and Smith (2001), cited by Seleteng-Kose et al. (2021), rank the area as having the fourth richest regional flora in southern Africa. The Maloti-Drakensberg Park range of mountains constitutes the principal water production area in Southern Africa. The areas along the international border between the two countries create a drainage divide on the escarpment that forms the watershed for two of Southern Africa's largest drainage basins. The rivers of southern Maloti-Drakensberg including Sehlabathebe National Park drain into the Senqu/Orange River which flows westwards into the Atlantic Ocean extension of the uKhahlamba Drakensberg Park. The uKhahlamba Drakensberg Park has been identified as an Important Bird Area and forms a critical part of the Lesotho Highlands Endemic Bird Area.

A large proportion of the 30% endemics are found in the heathlands and the bogs of the upper alpine belt (Hilliard & Burt 1990); It is these two categories that form the globally significant biodiversity value. Lesotho is part of the Southern African grassland biome, which is classified under three categories (Highveld, Afromontane and Afroalpine) influenced mainly by altitude.

Lesotho currently has 1 site designated as Wetlands of International Importance (Ramsar Sites[18]), with a surface area of 434 hectares, a highland wetland about 200 km southeast of the capital city Maseru, part of the Lets'eng-la-Letsie (not yet gazetted) protected area. The main vegetation types are Afromontane and Afroalpine formations that are dominated by grasses and show high biodiversity and endemism levels. A number of vulnerable species occur among the 110 bird species recorded at this site, including the Wattled and Blue Cranes, the Lesser Kestrel and the Bald Ibis. The site is currently used as grazing land and is important for provision of grass for thatching, as a source of water, medicinal plants and wood, and for fishing. Given the free access/open property nature of the site it

suffers from overstocking, overgrazing and erosion, as well as overexploitation of its natural resources. This wetland is the source of the Quthing River, which is a major tributary of Senqu or the Orange River, one of the largest in southern Africa.[19] Recently, Bokong Nature Reserve and T?ehlanyane National Park are proposed to become a Man and Biosphere Reserve under the UNESCO Man and Biosphere Programme[20]

Lesotho has made efforts to protect threatened species. A few species-specific protection measures have been undertaken such as development in implementation of the bearded vulture (*Gypaetus barbatus*), the Maloti minnow (*Pseudobarbus qauthlambae*), a critically endangered fish species only found in this park, and the spiral aloe (*Aloe poliphyla*).

Lesotho, however, has one of the lowest proportions of conservation protected areas of any country in Africa (formal reserves of total 0.261% of land surface[21]), but with recent addition to the protected area network this area has increased over the last decade. As such, the whole biodiversity resource must be considered as under threat. Outside the protected areas biodiversity is lost through the degradation of vegetative cover through heavy grazing, through over-frequent burning; and, especially for wetlands, through erosion. Heavy grazing leads to loss of palatable species and weed encroachment. The vegetation has endured tremendous stress from key threats that have been identified (overgrazing, overharvesting, uncontrolled fire, encroachment by settlements and cultivation on the rangeland, invasive aliens and pollution), that contributed to the deterioration of conditions in general by continually transforming the environment.

Less than 15% of the land area is suitable for arable farming, and agricultural productivity is low. Most of the population is concentrated in the lowland western third of the country, where competition for limited land resources is intense, and soil erosion is widespread. 90% of rural household energy needs are derived from biomass, in the form of fuelwood (almost non-existent), shrubs (increasing pressure), dung and crop residues. Therefore, stocks of woody vegetation have been greatly reduced, and the beneficial effects of manuring crops are limited.

Specifically threats to biodiversity are exacerbated by the communal land tenure system on the mountains, which does not provide incentives for resource conservation. The Fourth National Report to the CBD (2009) states that: "The biodiversity conservation status is patchy, as it is informed from research work and uncoordinated implementation on the ground. Due to the fact that biodiversity is the basic support to community livelihoods, there is a range of threats associated with community actions that apply considerable stress on the biodiversity components."

Biodiversity loss in Lesotho is a result of two inter-linked issues. Firstly, there are few protected areas which protect biodiversity through specific design. Secondly, biodiversity on the open access rangelands is degrading rapidly due to increasing human populations placing pressure through overgrazing and poor farming practice. Communal land tenure, with grazing and land resources being allocated in traditional ways by the chief has not encouraged community investment in resource conservation.

Degrading ecosystems and biomes. Degradation of ecosystems has been identified as a major constraint to Lesotho's socio-economic development[22]. Current land management practices result in soil erosion, loss of plant cover and biodiversity, and reduced soil fertility. For example, many grasslands in Lesotho are negatively affected by excessive grazing by livestock, while forested areas are degraded as a result of increasing demands for biomass fuel to supply domestic energy. The widespread degradation of these ecosystems results in reduced agricultural productivity and further exacerbates the challenges of rural poverty and food insecurity.

The main causes of environmental degradation include *ploughing* on steep slopes and/or marginal lands by crop farmers (54 percent of croplands are exposed to sheet erosion), *overgrazing* of rangelands (an estimated 50 percent over-stocking of livestock), *cutting of trees* for fuel and other uses, and *unregulated encroachment* of human settlements onto prime agricultural lands[23].

In his research Majara (2005) states that: Signs of grassland depletion and forest decline were also evident and were attributed to population expansion, overgrazing and indiscriminate cutting of trees and shrubs for firewood. Extensive biomass decline was also associated more with soils in the lowlands derived from sedimentary rocks than soils of basalt origin that occur mostly in the highlands.?

The same conclusion, indicating the degradation of agricultural and rangeland land use system, is reflected in a recent IFAD (2020) publication[24], stating that: "Environmental degradation in Lesotho is widespread and manifests itself primarily in the over-exploitation and ultimate destruction of sensitive biomes. Overgrazing and a consequent loss of indigenous vegetation leads to soil erosion, which is aggravated by long dry spells interspersed by heavy rainfall. Conventional tillage further exposes soils to water and wind erosion affecting catchments and rangelands and accelerating the loss of pastures and arable land. The combined effect of a highly variable climate from year to year, and poor management adversely influence the productivity of both arable land and the rangeland.?"

NES (2002) remarks that land resources management has been characterized by constraints such as fragmented efforts, lack of clear framework for land use planning, absence of security of tenure, declining traditional authority and mixed rule of law between government institutions and traditional authorities. These dynamic factors have resulted in bad land use practices, such as encroachment on agricultural land by residential settlements, encroachment on steep slopes and marginal lands by crop farmers, uncontrolled mining and road construction in other environmentally sensitive areas of the country such as wetlands. Population growth and the rapid rural-urban migration in search of opportunities increase urban and peri-urban population density in Lesotho. This has exerted pressure on natural resources by increasing demand for land for various uses and generates competitions among users.

Seventy percent (70%) of the population in Lesotho derives its livelihood from agricultural activities but the total arable land is estimated at 9 % of the country's land base creating conditions for extreme poverty and tremendous pressure on the natural resource base. The Government of Lesotho together with interested and affected stakeholders have embarked on adopting an integrated approach in land use and resource management strategies in order to minimize pressures imposed on land by natural and man-made activities.

Mining, construction, transport and infrastructure have contributed to negative environmental impacts change. This is through habitat destruction, water, noise and air pollution and visual impacts.

Natural capital resources and baseline in the Upper Senqu Catchment

The Upper Senqu Catchment, the area chosen for field interventions, covers a total area of 15064.19 km² and has been agreed with stakeholders to be a suitable project focal area based on a series of selection criteria used to determine the catchment area best fitted for the project purpose, see Annex A for a map and additional information. These explicit selection criteria for this catchment include

environmental challenges and information on the environmental services of the catchment, including the occurrence of global important species and wetlands (Ramsar site). The Upper Senqu Catchment has a total population of 389,011, divided over in total 19 districts and a total of 2,405 villages. The Upper Senqu Catchment is the largest catchment of Lesotho, about half the total area of Lesotho, but with a relatively low rural population density, partly caused by the rough mountainous topography.

The Upper Senqu Catchment continues to enjoy high rainfall and snow with up to 1,500mm per year, supporting the unique Afro-Montane biome to survive with endemic flora and fauna such as the spiral aloe (*Aloe polyphylla*) and bearded vulture (*Gypaetus barbatus*).

Selection Criteria

Comparing a number of potential areas for pilot interventions, the following selection criteria were used in close consultation with the key stakeholders:

? Occurrence of protected areas or other areas with high biodiversity value: The Upper Senqu Catchment (USC) covers the Transfontier Conservation Area (TFCA, representing high biodiversity richness and a centre of endemism. The following Protected Areas are located within the USC: Bokong Nature Reserve (Biosphere core area), Schlabathebe National Park (World Heritage Site) and Lets'a la Letsie Wetland (a Ramsar site). The USC contains areas of ecological importance, particularly the indigenous *Leucosidea sericea* woodland, known locally as *Ouhout* or *Che-Che*, one of Lesotho's very few forested areas. Equally rare are montane stands of bamboo.

? A key hydrological area: The area forms the mountainous source area of the Main Senqu river, and is covering the Senqu source (a proposed Protected Area). Although the mountain region of Lesotho constitutes only 5% of the total catchment of the Senqu/Orange river, it provides about 50% of the total catchment run-off. The topography of the region allows for the possibility of developing a hydro-power generation in Lesotho in conjunction with the provision of water supplies to the Republic of South Africa (RSA). The Lesotho Highlands Water Project (LHWP) was identified more than 50 years ago as the least cost-effective water resource exploitation to benefit both the peoples of the Kingdom of Lesotho (Lesotho) and the RSA.

? Data availability: The USC harbours several past and ongoing projects, among them ICM and MDTP, offering the presence of baseline data collected. The presence of transboundary reservoirs (Katse, Polihali) also ensures data availability for these areas.

? Private sector engagement/presence: within the USQ a number of major Mines is present (Lets'eng Diamond Mine, Kao Diamond Mine, Liqhobong Diamond Mine, Mothae Diamond Mine), important stakeholders to engage in the management of the watershed. Additionally fishing companies and enterprises focused on the production of produce based on natural resources are present in the USC.

? Community livelihoods: The USC, with extensive rangelands, is important for the livelihoods of the local communities though the livestock population grazing in the area.

A **key challenge** for Upper Senqu Catchment is to manage its economic development in a sustainable manner and to prevent adverse impacts to natural capital and its services, as provided by mountain catchment and the river discharge it generates, reduce pollution of water resources or reduce the impact by climate change to agriculture through resilient natural capital resources.

Root causes of threats to natural capital resources in the Upper Senqu Catchment

Although the population density of the USC is relatively low compared to urban areas, with about 0.25 person per hectare, the impact of human intervention on the fragile mountain ecosystem has resulted in loss and degradation of biodiversity and land. In the process of creating new economic opportunities, through e.g. mining operations and the production of natural resource based products, this level of economic growth also carries environmental and social costs that have yet to be fully understood, and its potential impact on natural capital in the country has yet to be accounted for.

In more detail, some of related **threats** to biodiversity and natural capital resources and (ecosystem) services in the Upper Senqu Catchment, include:

Loss and degradation of terrestrial ecosystems due to unsustainable practices

Current land management practices result in soil erosion, loss of plant cover and biodiversity and reduced soil fertility. The grasslands in the mountainous USC are negatively affected by excessive grazing by livestock, while the few forested areas present in the USC, are threatened by the demand for biomass to supply domestic energy (firewood). The degradation of these ecosystems results in reduced agricultural productivity and further exacerbates the challenges of rural poverty and food insecurity. Overgrazing and a consequent loss of indigenous vegetation leads to soil erosion, which is aggravated by long dry spells interspersed by heavy rainfall. Contributing to the ongoing degradation process are recurrent fires in the dry season, overharvesting of domestic plants, disturbance of the few existing wetlands and the progressive development of road infrastructure, providing essential access to services, but also leading to further encroachment into vulnerable areas.

Pollution of water resources

The presence of a number of diamond mines in the USC is of concern as mining waste is a source of water pollution and together with the sediments mobilized by surface erosion, as a result of unsustainable land management practices, is resulting in increased sediment load of the Senqu river, affecting water quality, aquatic biodiversity and of negative impact on downstream hydropower facilities through siltation of reservoirs.

Root causes leading to or exacerbating unsustainable economic development as well as pollution and loss of natural capital and biodiversity in the Upper Senqu Catchment include:

Weak spatial planning for integrated watershed management

Loss of biodiversity and natural capital resources in the USC is attributed to inadequate watershed management. Although information on users and uses of water and land in the catchment area are available, this is not available for all sub-catchments and not accessible to all key stakeholders. Lesotho is improving its approach to integrated watershed management but has to advance its information base for future management decisions.

Lack of incorporating value of natural capital

An underlying cause for this is that the value of natural resources is not fully being considered in present watershed management processes. Lesotho has currently no system of national accounts. It is therefore difficult for decision makers to take on board ecosystem values in their planning process and institutions presently lack the capacity to do so. Presently, government authorities will continue to make conventional water resource management decisions without understanding and capturing the role of the terrestrial ecosystem. It is important to inform planning activities by generating information on the value of land and water assets and the opportunities for using these assets for revenue generation and increasing wealth. Without an information base of land and water accounts, representing a comprehensive understanding of ecosystems, their conditions and the ecosystem services they provide, decision makers in watersheds lack a comprehensive guidance for their operational guidelines and spatial plans.

Synthesizing these observations, a picture emerges for Lesotho in which overall biodiversity loss and ecosystem degradation is caused by a series of interrelated processes leading to loss of vegetation cover and biodiversity and ecosystem degradation, and reduced water availability and quality. The Lesotho mountain ecosystem is recognized as a globally important hotspot for biodiversity with a high degree of endemism and some globally threatened species. Although this is internationally recognized with designation of special status of protected areas (World Heritage Site and Ramsar site, a proposed Biosphere Reserve), biodiversity of these ecosystems is under threat as only a very limited area of the country is actually under protected status. Exacerbating these processes is the observed process of climate change, reducing the capacity of the degrading ecosystems to generate ecosystem goods and services for the benefit of local communities, as well as increasing the exposure of local communities to natural hazards such as floods, landslides and droughts.

Barriers

The long-term solution sought by the project is to mainstream natural capital through application of natural capital accounting in Lesotho into integrated watershed management. However, the following barriers are preventing this solution.

Barrier 1. *Limited awareness of the benefits of knowledge of natural capital and limited institutional capacity to assess and apply natural capital into policy development*

NCA is a growing field of work globally and it includes accounting for environmental assets such as water, minerals and energy, with an international standard, the System of Environmental-Economic Accounting (SEEA), in place for these accounts. A more recent aspect of NCA is ecosystem accounting, which focuses on accounting for ecosystem assets and ecosystem services. Although the natural capital of Lesotho is under threat as a result of the environmental problems described, no methodological approach has been applied in Lesotho to account for the inherent value of natural resources, biodiversity and the ecosystem services they provide to society. Institutions as the Ministry of Environment, the Ministry of Water and the Bureau of Statistics lack presently the capacity to adopt the concept of NCA and do not have an institutional arrangement, contrary to neighbouring South Africa, where NCA has been piloted in recent years. Besides a lack of institutional capacity, human resources are not trained in the concepts and methods of NCA and valuation of ecosystem services. Lesotho measures presently its national wealth only in terms of traditional economic performance but not through the natural capital in national land and water resources accounts. Efforts to quantify the value of the natural capital and their impact in national indicators (like GDP) also have not been undertaken. Besides the limited institutional capacity, another related barrier is presented by the availability of spatial data of biodiversity, land and water and their temporal development.

Barrier 2. *Information on natural capital and its valuation is not assessed and used to guide policy design and monitoring of watersheds in Lesotho.*

Presently, integrated watershed management and broader policy development is not informed with information on the valuation of the natural capital of Lesotho. The economic expression of the value of the natural resources is not available for decision-makers, although the majority of the population is dependent for its livelihoods on these resources through agriculture. As Natural Capital Accounts are not yet established, policy makers are not informed about the trends in the accounts and the potential impacts of spatial planning decisions or development interventions. It is therefore also difficult to generate scenarios and quantify impacts of plans and policies on the natural environment and the socio-economic services they provide. No NCA trials or pilots have been initiated to potentially inform planning and policy processes.

Barrier 3. *Stakeholders are not sufficiently aware of the value and application potential of natural capital to guide broader environmental and economic policy development.*

The lack of understanding of the concept of Natural Capital and Natural Capital Accounting is the direct result of the missing institutional and human resource capacity in Lesotho and hampers the development and promotion of NCA and the adoption and application of NCA for sustainable development. The potential and value of NCA are not sufficiently recognized and brought to the attention of potential stakeholders and institutional entities.

1.2) the baseline scenario and any associated baseline projects,

Natural capital including their ecosystem services and biodiversity, provided by the ecosystems in Lesotho are under pressure. In the agricultural areas and in particular in the limited area of arable land, less than 10%, unsustainable agricultural practices have resulted in serious degradation of many ecosystem services delivered at landscape level. The impacts of such continuing declines are often felt not only on-site with declining yields and pressure on rural communities' livelihoods, but also off-site affecting watersheds servicing downstream and urban areas, with increased sediment yield and siltation of hydropower projects and impact on river discharge and availability and quality of (drinking) water resources. Furthermore, encroachment into marginal areas, infrastructure development and upstream development activities can adversely impact remaining rangelands, forests, biodiversity and landscape-level ecosystem services, in turn affecting the sustainability of other sectors. Addressing these challenges requires recognition within economic sectors regarding their dependencies on natural capital, along with increased public and private investment in conserving the biodiversity and ecosystem services provided by landscapes (i.e. beyond protected areas), to account for and to internalize the market and non-market values of ecosystem services. In the baseline scenario, with data for NCA coming from both international and national sources, there is presently lack of up-to-date and complete national sets of data to enable sensible analysis of land and water natural capital and to come to related conclusions. Also, NCA will not have the needed level of central government support and sustainability, given it has yet to be introduced and integrated into the national accounting system since there is no standard for harmonizing the two systems. Although few actual on-the-ground investments and programmes exist to support such sector and landscape linkages, several policies and initiatives have been introduced that offer a foundation for implementation of the proposed project, as summarized below.

National Development Vision and Plans

In 2000 the country took a policy decision to formulate Vision 2020[25] to provide a long-term perspective within which national short to medium-term plans could be formulated. The specific objectives of the Lesotho Vision 2020 are to: establish a long-term vision for Lesotho by looking beyond the short-term plans and adjustments, explore the options for economic, political and human development to the year 2020, identify alternative development strategies suitable for the Lesotho situation, promote a process of open dialogue and consultation with socio-economic groups countrywide, create an environment whereby Basotho will actively participate in achieving the Vision 2020, and, develop a focus along the horizon in the direction of which development plans could be rolled out. Vision 2020 is the overarching baseline document, defining the development vision for Lesotho.

A key baseline document is **The National Strategic Development Plan (NSDP)**, a 5-year development plan for the period 2012-2017, which identified 'to reverse environmental degradation and adapt to climate change' as one of its key objectives. Fundamental issues include protecting water sources through integrated land and water resources management, as well as methods of boosting the environment's natural resilience to climate change, conserving biodiversity and exploring environmentally friendly production methods. Achievements under the NSDP include the rehabilitation of areas affected by soil erosion, with dams, construction of stone lines, diversion furrows and restoration of gullies structures. Additionally, the NSDP aimed at enhancement of forest. The NSDP

was updated with the second 5-year National Strategic Development Plan 2018/19-2022/23 (NDSP II[26]) with the theme, "In pursuit of economic and institutional transformation for private sector-led job creation and inclusive growth" intended to communicate the need for change of mindset and cultivate the understanding that the key role of the government in accelerating economic growth is about investment facilitation. The key priority areas are: (i) pursuing inclusive and sustainable development, (ii) strengthening human capital, (iii) building enabling infrastructure, and (iv) strengthening national governance and accountability systems. The NSDP defines Key Priority Areas and Intermediate Outcomes, among which 1.1 Commercial Sustainable Agriculture and Food Security, and Key Priority Area III, with Intermediate Outcome 3.3 Sustainable Production, Use of Water Resources and Improved Sanitation and Hygiene.

All in all, lack of data has a serious impact on policy-making processes in the country. This is contrary to the spirit of Agenda 21, multilateral agreements and indeed various government policies that are currently in place e.g., Environment Policy of 1998; Biodiversity Conservation Strategy of 2000; National Action Plan to Combat Desertification of 1998, etc.[27]

Lesotho developed its National Biodiversity Strategy and Action Plan (NBSAP) in 2000 as party to the CBD, named "National Strategy on Lesotho's Biodiversity: Conservation and Sustainable Use." [28] The NBSAP has not been updated since 2000. A series of National Reports to CBD have been published however, with the Sixth National Report to CBD as latest (2018).

The National Strategy for Development of Statistics (NSDS) is already being developed in Lesotho. This acts as the main framework for developing statistical capacity among line ministries to enhance coordination of activities related to statistical methods of data collection, analysis and dissemination. This coordination will also reduce duplication of data collection activities.

The Bureau of Statistics (BOS)[29] is a government department under the **Ministry of Development Planning**, mandated to set up a system for national official statistics on economic, social, demographic, including human resources, and environmental areas in relation to the development needs of Lesotho; and official statistics for purposes of economic and social planning, research, public information and international cooperation, and for related matter. The BOS was established in 2001 with the enactment of the Lesotho Bureau of Statistics Act[30]. BOS gathers and publishes a lot of data that is important for environmental statistics. This information is particularly useful regarding background variables but some variables contain pure environmental data. In BoS there are for example the 2006 Population Census, the 2001 Demographic Survey, the 1999/2000 Agricultural Census and the annual Agricultural Survey, which can provide data for environmental statistics. The BOS produces annual reports on key statistics and operates and maintains the Lesotho Data Portal: <https://lesotho.opendataforafrica.org/>,

with an overview of economic, agricultural, demographic, energy, healthcare, food security, education, trade and geographic data.

As a response to the problems relating to data management (storage, exchange, standards etc.), the Committee on Environmental Data Management (CEDAMA) was established in February 1999. The main objective of this committee is to coordinate environmental data management activities in the country. Specific objectives include among others to: promote a culture of environmental data exchange; advise National Environment Secretariat (NES) on issues of environmental data management; establish data quality standards; advise NES in the formulation of relevant policies on management of data; advise NES on measurable environmental quality indicators for different sectors of the economy; and to assist with the analysis of trends in environmental quality indicators, and recommend mitigation measures. Its membership has been drawn from diverse backgrounds e.g. government, parastatals, private sector and NGOs.

The Committee on Environmental Data Management produced draft data exchange guidelines in 2000 in a bid to address the issues of poor data exchange among producers and users of data and information. These guidelines support the further development of a national spatial data infrastructure (NSDI).

LeSIS, the Lesotho Soil Information System[\[31\]](#), under the Ministry of Forestry, Range and Soil Conservation, provides soil maps and related information systems and constitutes the basis for assessing soil quality over time. LESIS further advocates for organized and systematic survey and monitoring of soils in Lesotho with accurate and up-to-date soil information using state of the art methods and tools of digital soil mapping. LeSIS contains various data sets beyond only soil data: it has land cover data and landform data and additionally presents spatial and climate data.

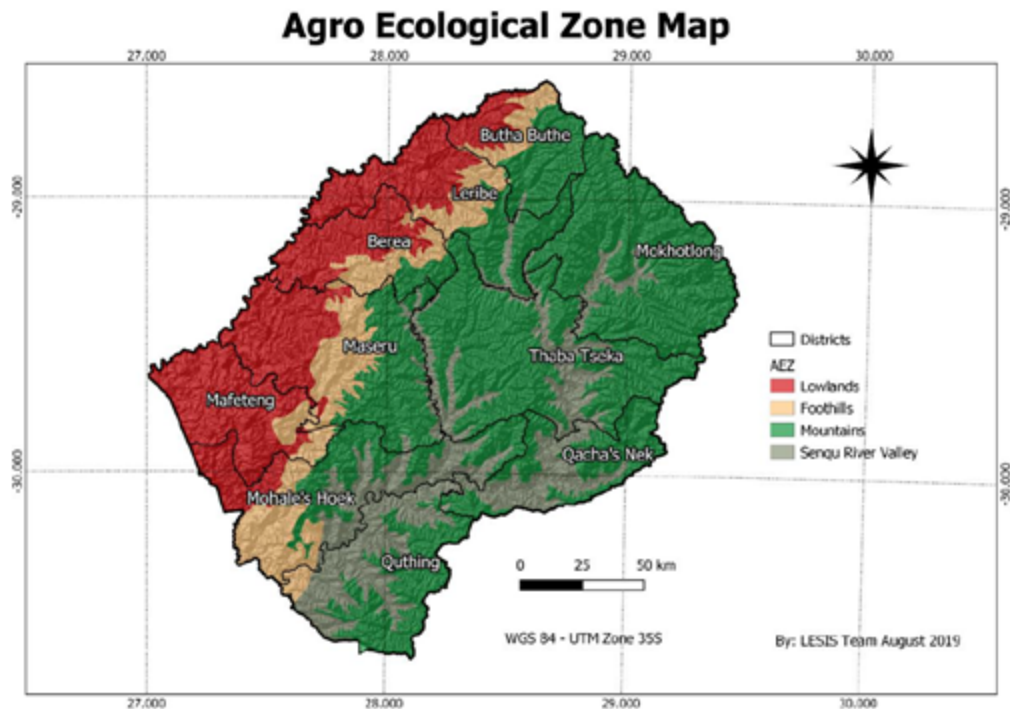


Figure 3: Agro-ecological Zone Map of Lesotho Source: LESIS, 2019[1]¹

[1] LESIS (2019). Key Policy Issues for Sustainable Soil Management and Food Security in Lesotho

Natural capital valuation and accounting

Very limited efforts have been made in Lesotho to apply internally adopted methods of natural capital accounting and valuation of ecosystem services, as promoted by the UN-System of Environmental-Economic Accounting method (SEEA). UN-SEEA is an international statistical standard that uses a systems approach to bring together economic and environmental information to measure the contribution of the environment to the economy and the impact of the economy on the environment. The SEEA uses a structure and classifications consistent with the System of National Accounts (SNA) to facilitate the development of indicators and analysis on the economy-environment nexus[33]. In a business-as-usual scenario (BAU) the introduction and application of NCA would remain absent and non-available for policy makers and spatial decision-makers. Presently, government authorities will continue to make conventional water resource management decisions without understanding and capturing the role of the terrestrial ecosystem.

Regional NCA efforts

South Africa is at the forefront of a global movement on Natural Capital Accounting (NCA). NCA is a growing field of work globally and in South Africa. It includes accounting for environmental assets such as water, minerals and energy, with the international standard, the SEEA, in place for these accounts. A more recent aspect of NCA is ecosystem accounting, which focuses on accounting for ecosystem assets and ecosystem services. Statistics South Africa's (Stats SA) is publishing a Natural Capital series and presented recently South Africa's first land and terrestrial ecosystem accounts[34]. These accounts are a first of their kind for South Africa and have been produced as part of **the Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project**[35], which was launched in 2017 by the United Nations Statistics Division (UNSD) and United Nations Environment Programme (UN Environment) with funding from the European Union (EU). South Africa is one of five countries (along with Brazil, China, India and Mexico) participating in this international project, which aims to advance the global knowledge agenda and initiate testing of SEEA Experimental Ecosystem Accounting (SEEA EEA), which focuses specifically on accounting for ecosystems. In South Africa, the NCAVES project was led jointly by Stats SA and the South African National Biodiversity Institute (SANBI). These national land and terrestrial ecosystem accounts and the methodology developed and applied form an excellent example from the region how NCA can be a valuable methodology to inform spatial development and to support the development of policies in Lesotho. The publication of land and terrestrial accounts offer an excellent reference case study for Lesotho, as they reflect how basic spatial units for land accounts and land cover classes were defined. As Lesotho is completely surrounded by South Africa, these accounts and related spatial inventories provide an obvious starting point for NCA development in Lesotho. Apart from the publications of the NCAVES project, considerable technical expertise is present in South Africa and a close collaboration with South African experts would be an excellent opportunity to support capacity development on NCA, both at institutional as at human resource (staff) level.

Besides the development of thematic natural capital accounts, South Africa has made progress in developing a national NCA strategy. The strategy's main objectives[36] are to (1) strengthen collaboration and coordination between data producers to enhance investment and commitment to the production of natural capital accounts, (2) produce statistics from natural capital accounts using agreed standards, and (3) derive indicators that inform South Africa's sustainable development policy objectives. Such a national NCA strategy would be an important output for the envisaged project to develop for Lesotho.

A broader regional initiative is the **Africa Natural Capital Accounting Community of Practice**[37], a regional learning and knowledge platform that brings together professionals from governments institutions, nongovernmental organizations and academia that are interested in or working on Natural Capital Accounting (NCA) in Africa. It was initiated in November 2019, following the first **Africa Forum on Natural Capital Accounting** in Kampala, Uganda. Attended by representatives from 18 African countries, participants expressed unanimous support for the creation of a community of

practice on NCA in Africa. Responding to this demand, the Global Program on Sustainability, the Gaborone Declaration for Sustainability in Africa, the United Nations Statistics Division, and the United Nations Environment Programme, committed to provide technical support to this community over the coming years.

Donor funded projects in support of natural capital and biodiversity conservation

Without the UNEP/GEF project, several closely related baseline initiatives towards Natural Capital and/or Biodiversity protection and/or restoration in Lesotho are ongoing or recently completed:

The UNDP-LDCF-GEF Project **‘Reducing vulnerability from climate change in the Foothills, Lowlands and the Lower Senqu River Basin’**, PIMS 4630. This six-year project started in January 2015 and ended in December 2020 and received GEF-funding of US\$8,398,172. The LDCF-financed project contributed to overcoming existing barriers through strengthening institutional and technical capacities of government institutions to plan for and implement adaptation using an ecosystem management approach. In particular, the project aimed at: i) development of a geo-based climatic, agro-ecological and hydrological information system to inform the analysis of climate-driven vulnerabilities and the cost-effective planning of climate-smart ecosystem rehabilitation and management measures; ii) strengthening of institutional capacity for land use planning and decision-making by integrating climate risks into development plans and policies; iii) providing access to knowledge and training on adaptation using an ecosystem approach.

The UNEP-LDCF Project **‘Strengthening Climate Services in Lesotho for Climate Resilient Development and Adaptation to Climate Change’**, PGEF ID 6926, executed by the Lesotho Meteorological Services aimed at providing community-based early warning services, the installation of weather monitoring equipment and the training of staff in agrometeorology, forecasting and early warning methods and approaches. The focus of this project is the need to reduce the country’s vulnerability and risk to climate change hazards, characterized by irregular and unpredictable rainfall associated with increased floods and landslides as well as seasonal and prolonged droughts, through the development of an Early Warning System (EWS) and enhancing the availability of climate information for long-term planning. The project will be demonstrated in six pilot sites to test the effectiveness of the EWS on ‘nowcast’ weather, flood forecasting and advisories capacity. The 5-year project started in November 2019 and will last until April 2025[38].

The FAO-LDCF-GEF Project **‘Strengthening capacity for climate change adaptation through support to integrated watershed management’**[39], GEF ID 5124, with a GEF budget of US\$3,592,694. The 4-year project started in November 2015 and ended in October 2020. The specific

objectives were: (i) to implement sustainable land and water management practices (SLM/W) and resource conservation measures in selected watersheds to reduce vulnerability and enhance adaptive capacity at community level and (ii) to strengthen diversified livelihood strategies focusing on crop, livestock and agro-forestry systems at community level in selected watersheds in three most vulnerable livelihood zones. The project components included: (1) Strengthening technical capacity of national and district level staff and institutions on sustainable land and water management and climate-resilient livelihood strategies; (2) Assessing vulnerability of livelihoods and impacts of climate change on land suitability and use at watershed scale; (3) Promoting tested Sustainable Land and Water Management (SLM/W) practices to build resilience to climate risks in vulnerable sub-catchments and watersheds; (4) Strengthening diversified livelihood strategies and implementation of improved income generating activities at the community level and (5) Dissemination of best practices, project monitoring and evaluation. The project was executed by The Ministry of Forestry, Range and Soil Conservation (MFRSC), Ministry of Agriculture and Food Security (MAFS), Ministry of Energy and Meteorology (MEM), Ministry of Water (MoW), Ministry of Local Government, Department of Environment (DOE) and National University of Lesotho (NUL). The Terminal Evaluation of the project^[40] concluded that change variability has impacts on Lesotho's wetlands, which are host to a significant portion of the country's predominately agricultural economy. Intervening in this sector could potentially increase food security and reduce poverty. The project implemented sustainable land and water management practices and resource conservation in an effort to reduce the affected communities' vulnerability while increasing their capacity to adapt to the effects of climate change. The evaluation found the project to be effective in improving the livelihoods and quality of life of the affected communities. It has been particularly relevant to Lesotho's national priorities focusing on sustainable land management and drought management. Future projects should place more attention on gender issues, particularly showcasing how women's livelihoods have been improved by FAO intervention.

The eight-year IFAD project **Lesotho. Regeneration of Landscapes and Livelihoods? (ROLL)**, IFAD adaptation and mitigation funding of US\$6,547,000, starting in 2021 and ending in 2028. In a context of persistently high levels of land degradation and rural poverty, the ambition to achieve systems and practices changes in the project areas is highly relevant. To address this challenge, The ROLL project's aim is to provide a large-scale impetus, which combines the efforts of several government and non-government agencies for a sustainable management of the environment. ROLL's landscape approach and focus on rural and remote areas aim to address the above-described rural poverty persistency. ROLL's objective is to ensure that rural communities adopt transformational practices for regenerated landscapes and sustainable livelihoods. This objective is underpinned by four outcomes; 1) change in resource use practices; 2) reduction of environmental degradation; 3) improved livelihoods; and 4) the establishment of a facility and a fund. The PMU will be housed at the Ministry of Forestry, Range and Soil Conservation (MFRSC) and collaborate closely with other key Ministries. The total project cost is US\$46.348M. The IFAD loan financing (US\$11.3M) will be complemented by contributions from the Government (US\$7.99M), OPEC Fund (US\$15M loan + 0.5 Mio grant), GEF (US\$3.5M grant), other future investors into the Fund (minimum US\$3.5M) and enhanced by strategic support by the FAO (US\$2.4M).

The African Development Bank (ADB)-LDCF-GEF Project **Climate Change Adaptation for Sustainable Rural Water Supply in Lowlands Lesotho**[41], GEF ID 8014, executed by the Ministry of Energy, Meteorology and Water. The 4-year project started in 2019 and lasts until 2022 and has a GEF budget of US\$4,416,210. The project objective is: To improve the livelihoods of the communities of South Western Lowlands facing challenges caused by climate change through better water resource management. The project is structured into three components: Component 1: Identifying Climate Risks and Reducing vulnerability to climate change in the water sector for communities in the project area, Component 2: Capacity Development for Improved Water Resources Management, and Component 3: Awareness Raising of Local Communities on Climate Change Adaptation with a fourth component on Knowledge Management and Monitoring and Evaluation.

GEF ID 10797 - GEF-World Bank **Sustainable Groundwater Management In SADC Member States Project Phase 2** -, Agency: IBRD; GEF Financing: \$ 4,566,210; Co-financing: \$ 35,000,000, which will notably improve monitoring capacity, harmonize databases and develop decision support systems related to ground water. Building on an ongoing long-term technical engagement with the Secretariat of the Southern African Development Community (SADC), the project will support 25 SADC-GMI to fulfil its mission to develop, sustain and demonstrate technical and financial knowledge and capacity for inclusive groundwater management in the SADC region, at the national and transboundary levels.

GEF ID 10793 - **Building climate-resilient livelihoods and food systems?** - FAO, GEF Financing: \$8,932,420. The project will notably develop decision-support systems for policy-makers and practitioners to assist with the formulation and evaluation of policies and measures for climate-resilient food systems transformations, and also focusses on agricultural water management. It has as objective to enhance climate resilience of landscapes and communities for food security through sustainable water management. The project strategy is to leverage all key stakeholders and initiatives towards the goal of LDC graduation and building a sustainable, resilient inclusive economy and food secure society - as envisioned in the second National Strategic Development Plan (NSDP II) 2019-2023 - where agricultural water management is the central pillar of climate resilience.

The project will build on the **Support to Integrated Catchment Management in Lesotho** Project (2020-2023, Euro28 million) funded by the European Union and GIZ, a flagship project that aims to institutionalize Integrated Catchment Management in Lesotho based on gender equality and climate change adaptation principles. The project is establishing the institutional structures for implementing ICM (capacity development) and carries out watershed improvement (whereas infrastructure can be one solution on-hand) to reinforce the sustainable use of natural resources. The objective of the proposed action is to have Integrated Catchment Management institutionalized and under full

implementation in Lesotho, based on gender equality and climate adaptation principles. The objectives are in line with the outputs of the NCA on effective policy framework for Integrated Catchment Management and effective institutions being established with equitable representative of women and youth and capacity building of stakeholders. The project supports the national programme on Integrated Catchment Management in Lesotho named ReNOKA[42] (We are Water). The goal of the ICM project is the sustainable management of land and water resources in Lesotho. It is aimed at combatting land degradation and the depletion of water catchments in the country. The successful implementation of the programme is expected to: protect and conserve water resources in the country, preserve Lesotho's vast wetlands and ecosystems, reduce soil erosion and desertification, rejuvenate agricultural lands, and improve the resilience of Basotho and their livelihoods.

The **National Land Cover database**[43] supported by FAO in Lesotho and funded from the European Commission Humanitarian Aid Department (ECHO) and the Swiss Development Cooperation (SDC). The land cover database covering the entire territory of Lesotho is developed through multi-spectral image fusion (or pan sharpening) technique using the following two sets of images: satellite imagery (Rapid Eye 2014) at lower spatial resolution (5 m) but higher spectral resolution (visible and infrared bands); and, the panchromatic band of aerial photography (ortho-photos 2014) at very high spatial resolution (0.5 m) but lower spectral resolution. Since 2012, FAO Lesotho, the Ministry of Agriculture and Food Security (MAFS) and the Ministry of Forestry, Range and Soil Conservation (MFRSC) started implementing the Resilience Strategy, promoting adaptation to climate change, promotion of sustainable farming systems with emphasis on sustainable land management. The Resilience Strategy is implemented at national level and involves an increasing range of stakeholders with expansion in schools and inclusion of local leaders. The Land Cover database has been implemented in partnership with the Government of Lesotho through CEDAMA (Committee for Environment Data Management) chaired by the Bureau of Statistics. A legend including relevant land cover classes was developed in country using the Land Cover Classification System (LCCS3/LCML) methodology. Interpretation of the land cover database was undertaken to generate a national land cover object-oriented vector database according to the legend with 1.5 m resolution in lowlands and 2 m resolution in highlands. Additional spatial ancillary data has been provided by line ministries to enrich the dataset and foster coordination among spatial data users. Apart from providing a robust baseline of the current state of land cover in the country as of 2014, the Lesotho Land Cover datasets opens the development of diverse range of applications, such as:

- ? Land Cover Change analysis of agriculture, forestry, rangeland, urban areas, etc;
- ? Percentage of agricultural land in sloping areas;
- ? Disaster Risk Maps;
- ? Monitoring frameworks for Integrated Water Catchment Initiatives;
- ? Erosion Risk Assessment;

? Rangeland Monitoring;

? Above-ground Biomass assessment and change;

? Development of a Land Resources Information System.

The Land Cover database generated provides accurate information on both physical and socio-economic resources. For physical resources, it provided timely and precise information on the actual state of the agricultural, forestry/ rangelands, natural vegetation cover, the level of degradation useful for the evaluation of the impact on rural development and agricultural production. For socio-economic resources, the land cover database and statistics can clearly show the population pressure on the land and inform on main agro-information systems and on infrastructure and habitat development. Land cover information represents the human action on land and its continuous change, therefore its assessment has to be monitored regularly. Based on the information of the Land Cover database the Land Cover Atlas of Lesotho was published in 2017[44].

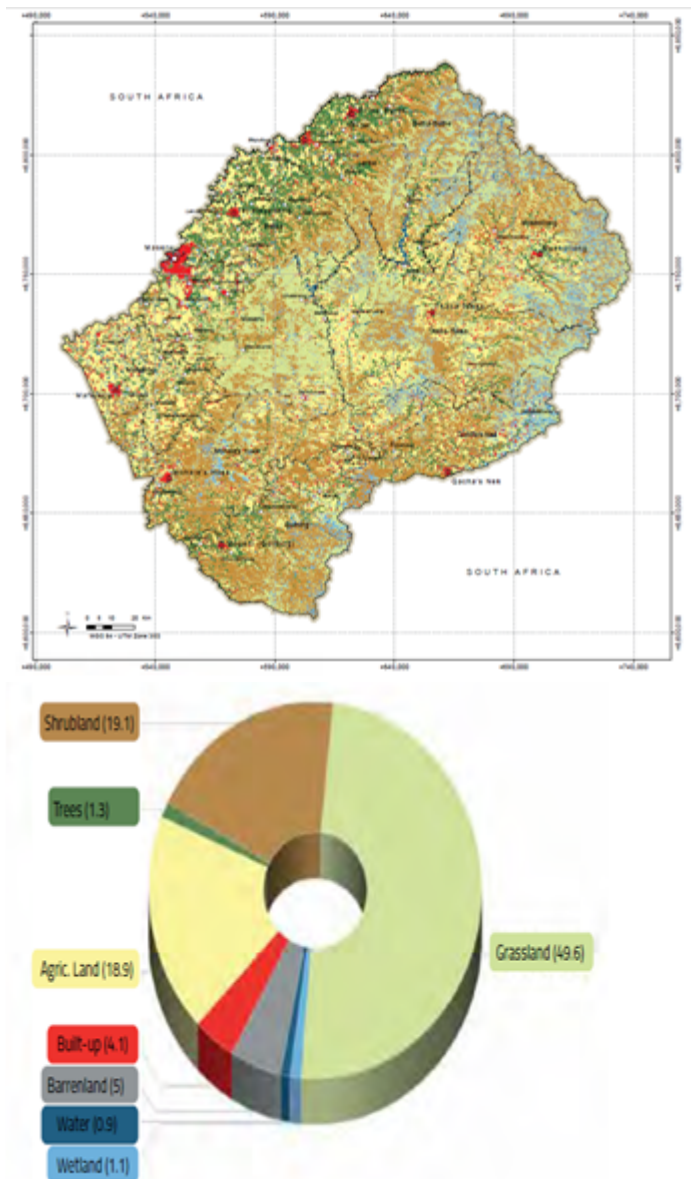


Figure 4: Land cover map of Lesotho. Source: FAO (2017)

1.3) the proposed alternative scenario with a brief description of expected outcomes and components of the project;

The depletion of natural capital ? including assets like forests, water, minerals, biodiversity and land ? poses a significant challenge to achieving sustainable development objectives. The issue is especially important in developing countries as the low-income countries depend on natural capital for a high percentage of their wealth. Managing, conserving and monitoring the natural environment including biodiversity and related ecosystems and ecosystem services require science-based tools and

information for decision-making. Implementation of spatial plans and sustainable development frameworks requires a reliable information system consisting of data bases and indicators (both environmental and socio-economic) regularly updated and measured by various agencies and especially the Bureau of Statistics.

Science-based quantitative measurement regarding the state of the environment and the impact of ecosystems degradation on the well-being of humans and the economy, becomes central to decision-making, together with available response options in terms of planning, budgetary allocation and mitigation measures. Natural Capital Assessment and Accounting (NCAA) utilizes both environmental (including biodiversity data) as well as economic data. In this way, accounting can be used for implementing multilateral environmental agreements and national development plans as the NSDP II in Lesotho. This type of practical approach to decision-making necessitates integrating the accounts into national information systems and ensuring that the base data are regularly measured, curated, updated and used to monitor environmental trends as well as fulfilling national and international environmental reporting obligations.

The project will enable the process of NC Accounting in Lesotho to be introduced in a phased stepwise approach, where the methodology, tools and NC Accounts established for pilot areas ? focusing on a restricted geographical area and thematic accounts, could be gradually expanded upon, as well as scaled up nationally, or replicated to other districts after the project or added with additional accounts. By investing in Lesotho's information and knowledge management infrastructure, and by strengthening the institutional framework and its capacity to interpret data and to integrate environmental information in project development and policy processes, the project will contribute to a solid foundation for environmental management in Lesotho. Its capacity to diagnose environmental issues and to develop preventive or mitigative measures will be enhanced accordingly. Environmental information and knowledge management is hence seen as an important approach for influencing policy decisions toward increased sustainability by being able to provide informed decision support that allows the incorporation of environmental issues into sectoral policies and related budgetary planning.

The main premise of the Project is that in order to sustain ecosystem services of the landscapes of Lesotho, information of the natural capital and the ecosystem services these landscapes provide is mainstreamed into integrated watershed management. This premise can only be achieved if knowledge and data on natural capital are gathered and developed into accounts and used by national authorities. This requires building institutional capacity on natural capital accounting, together with a coherent institutional arrangement and the mainstreaming of natural capital accounts into development planning.

The targeted project Outcomes and Post Project Results, depend on the following assumptions:

- ? Sectoral stakeholders have sufficient interest in NCA and support capacity and institutional development,
- ? Authorities are open to the application of NCA for development of integrated watershed management plans and sustainable development frameworks, and
- ? Stakeholders are interested in fundamentals and application of NCA in Lesotho and willing to support and promote NCA initiatives.

The project's Theory of Change (Figure 5), reflects the integrated approach how the project is addressing the key barriers to establish conditions in Lesotho to mainstream natural capital accounting into integrated watershed management. The Theory of Change of the project implies that to change the present situation, with existing barriers, linked root causes, drivers and threats resulting in ongoing negative impact on ecosystems, biodiversity and livelihoods, the below presented strategic interventions are required.

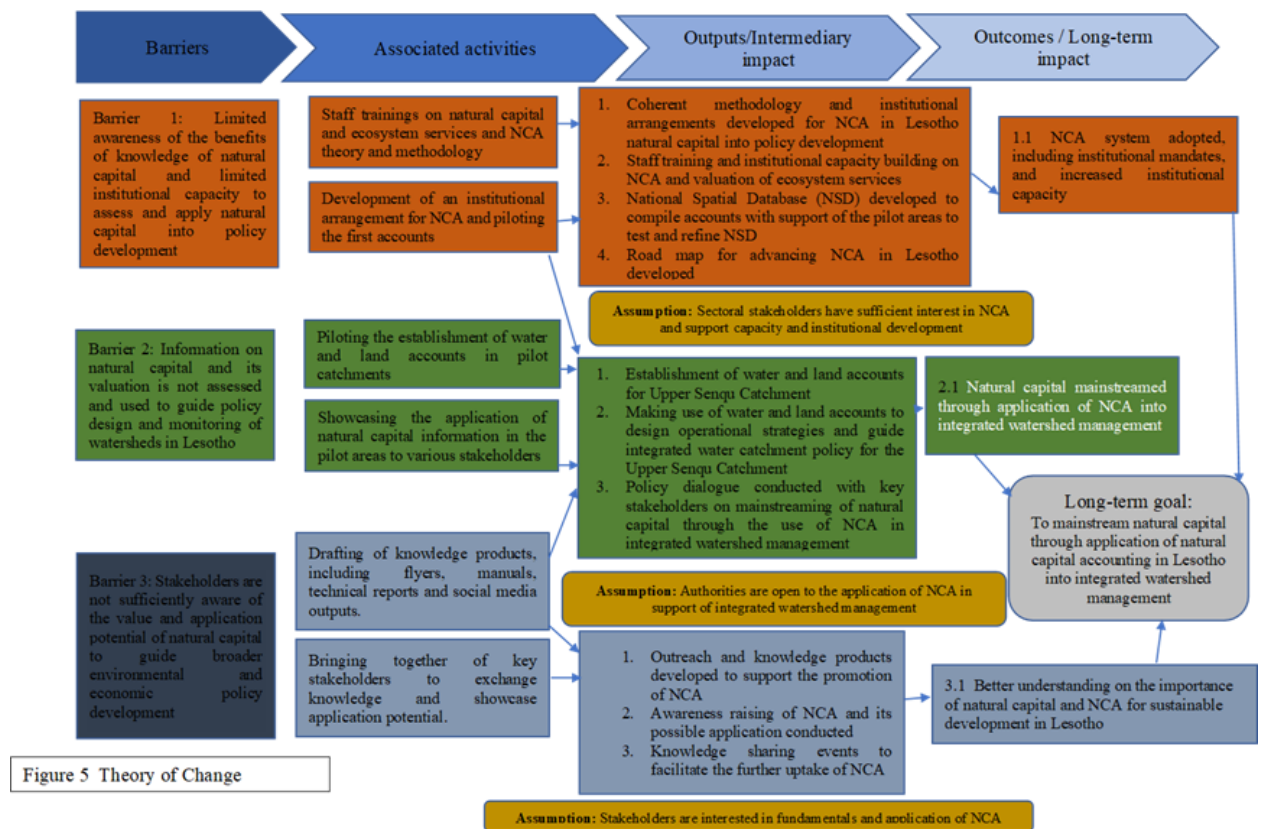


Figure 5 Theory of Change

Based on the Barriers summarized in section 1.1, the project alternative seeks to follow three logical pathways in order to achieve its Objective which is *?To mainstream valuation of natural capital through application of natural capital accounting into integrated watershed management in Lesotho?.*

The project contains three interrelated components and an additional component aimed at monitoring and evaluation:

Component 1 Building institutional capacity on natural capital accounting

This component consists of one Outcome and four project Outputs:

Outcome 1.1 *National Capital Accounting (NCA) system adopted, including institutional mandates, and increased institutional capacity*

This Component targets to introduce the concept and methodology of NCA, based on global best practices, such as developed by the SEEA, the System of Economic Environmental Accounting, to the key national stakeholders, develop a tailor-made coherent and consistent methodology for the country and an appropriate institutional arrangement and national system design for NCA in Lesotho. This will be the focus of Output 1.1.1: *Coherent and consistent methodology, institutional arrangements and national system design developed for NCA in Lesotho.*

Additionally, to support the institutional set-up described above, the project will support training of staff members on natural capital accounting and valuation of ecosystem services. This will be done by conducting tailor-made training programmes with the help of international technical experts in the field of NCA and ecosystem valuation. A separate training-of-trainers will be supported to facilitate further uptake and dissemination of the concept and application of NCA. These training and capacity building activities to enhance the institutional capacity will be targeted under Output 1.1.2 *Staff training and institutional capacity building on natural capital accounting and valuation of ecosystem services.* To facilitate the gathering of spatial and temporal information on natural capital a National Spatial Database needs to be developed to consolidate, update, monitor and analyze information on ecosystems and their ecosystem services valuation in land and water accounts. Such a digital repository is the key target of Output 1.1.3 *National Spatial Database (NSD) developed to compile (terrestrial) accounts with support of pilot areas to test and refine the NSD.* To complement the capacity development focus of this component and to strengthen the national institutional set-up and create enabling conditions for the post-project sustainability the project will support the development of a longer-term outlook in the form of a road map for advancing NCA in Lesotho to consolidate a viable future vision for NCA in development with description of key stakeholders to engage, the envisaged budgetary requirements including exploring required government funding and external funding opportunities and existing

constraints and how to overcome these. This will be tackled under Output 1.1.4 *Road Map for Advancing NCA in Lesotho developed, consolidating a future vision for NCA in Lesotho*.

Component 2: Mainstreaming natural capital through application of NCA into integrated watershed management

This component contains one Outcome and three project Outputs:

Outcome 2.1 "Natural capital mainstreamed into integrated watershed management through application of NCA"

Component 2 has its focus on actual assessments of the natural capital of the Upper Senqu Catchment as pilot area and thus applying the theoretical knowledge acquired in Component 1 into practice. This serves to explore how NCA as a method can be applied to assess the present status of the ecosystem of the Upper Senqu catchment through establishment of land and water accounts, the users and uses and to value their economic importance for integrated watershed management. This specific knowledge provides essential information to guide the management plans for the Upper Senqu Catchment area and specific sub-catchments and can be applied in a broader sense to achieve SDGs of Lesotho. The assessments of selected ecosystems are the focus of Output 2.1.1 *Establishment of water and land accounts for the Upper Senqu Catchment*.

Based on piloting of these assessments in selected sub-catchments of Upper Senqu catchments, (Khubelu and Senqunyane sub-catchments, see Annex A), the project will support the actual establishment of Natural Capital Accounts for the selected pilot areas, in close collaboration with staff of the national institutions trained, and supported by technical experts with substantial experience in the establishment of similar accounts (e.g., the land accounts established for South Africa by NCAVES stakeholders). The focus will be put on the establishment of terrestrial (land) and water accounts for these pilot regions to test and validate the methodology and tune the approach to the local conditions.

The NCA will be based on SEEA-EA methodology. Therefore, it will include ecosystem extent, condition, supply and use account. Therefore, the NCA tool may be used in different use cases, which need to be detailed at the PPG phase. However, the extent accounts will surely be developed, which can be linked with any land use activity. Since the supply and use accounts will be developed, the reservoir management and irrigation water allocation will be some potential use cases. The resource managers, the beneficiaries (water users), are already targeted stakeholders who will be part of the PPG planning. Therefore, the decision makers (resource managers) will be involved in project planning, implementation and monitoring of the project activities as well. Based on the available data, at least one ecosystem condition account will be constructed to demonstrate how the NCA can be used as a monitoring tool for watershed management beyond the water domain. Additionally, the resource managers will be capacitated how to use the ecosystem supply and use account as part of water basin management.

Complementary to the terrestrial and water accounts to be piloted under Output 2.1.1, the project will explore the application of NCA to design operational strategies and guide integrated watershed management of the Upper Senqu Catchment under Output 2.1.2, an approach in which environmental and economic information on water resources is essential. This will be combined with Output 2.1.3 *Policy dialogue conducted with key stakeholders on mainstreaming of natural capital through the use of NCA in integrated watershed management*, in order to broaden the experience with the establishment of NC accounts and the use of and integration of NCA into operational guidelines and policy development.

Component 3. Outreach and knowledge management for promotion of NCA

This component has one Outcome and three project Outputs:

Outcome 3.1 *Better understanding on the importance of natural capital and NCA for sustainable development in Lesotho*

As NCA is a new concept for Lesotho and few people have been introduced to its background and possible applications, the project will facilitate the dissemination of knowledge products to various audiences in order to share the lessons learnt within the project, showcase international best practices and highlight the contribution NCA potentially can make to better informed spatial planning, environmental monitoring and development frameworks. Under Output 3.1.1 *Outreach and knowledge products developed to support the promotion of NCA*, the project will produce various types of knowledge products as flyers, manuals, technical reports and social media outputs to share knowledge and lessons of the project as it progresses in implementation. Making use of these knowledge products and based on the emerging lessons and information from the pilot areas, the project will facilitate awareness raising of NCA and the application of NCA in the pilot regions under Output 3.1.2 *Awareness raising of NCA and its possible applications conducted*. This will include as target audience additional stakeholders that previously have not been trained or introduced to the concept of NCA. As the project progresses in its implementation cycle knowledge sharing events will be organized, to be combined with annual review and planning exercises, to share the emerging lessons and knowledge with a variety of stakeholders to catalyze further spread and application of NCA in Lesotho. This is targeted under Output 3.1.3 *Knowledge sharing events conducted to enable the networking with stakeholders to facilitate further uptake and development of NCA*.

These three integrated and interrelated components are complemented with a fourth component on Monitoring and Evaluation, consisting of one outcome and three outputs:

Component 4 M&E

Outcome 4.1 *Integrated and effective monitoring and evaluation system in place*

This component is intended to support the project in its ability to monitor its progress in achieving over time the targets it has set, to identify emerging constraints and challenges, and to take stock of emerging successes and best practices and to document lessons learnt. Three distinct outputs are supported to come to an operational and effective M&E system that is able to inform the project management team, support its ability to be adaptive in its management and to facilitate the Mid-Term Review and Terminal Evaluation as important stock taking and learning and measurement events. These include: Output 4.1 *Project gender-disaggregated M&E system enables tracking of project progress, performance and specifically capturing best practices to enable replication of NCA*, with the project's strategic result framework as essential tool to monitor project progress making use of distinct SMART indicators with baselines, MTR and TE targets and determined verification means; Output 4.2 *Mid-Term Review conducted* is aimed at stock taking of the progress and challenges of the project, its key lessons and recommendations for possible adjustments in project approaches and/or interventions; and Output 4.3 Terminal Evaluation conducted to document the key lessons of the project, its main achievements and recommendations for sustainability of this impact, supported by output 4.4 dedicated Exit Strategy developed to enhance the post-project lasting impact of the project.

1.4) alignment with GEF focal area;

The PIF has been designed as a GEF7 focal area biodiversity project. The project design is consistent with the following objectives of the GEF7 biodiversity focal area, as reflected in the GEF7 document[45] and reflected under Objective 1 'Mainstream biodiversity across sectors as well as landscapes and seascapes', the GEF provides nine entry points for countries to mainstream biodiversity across sectors. This project will focus on entry point 3: Natural Capital Assessment and Accounting (NCAA).

? BD 1-3: Natural Capital Assessment and Accounting

To generate global environmental benefits that correspond to the biodiversity GEF focal area, the project aims at supporting Lesotho to better understand the natural capital of the country, the ecosystem services and their spatial distribution they provide and the underlying drivers of environmental degradation that reduce the natural capital.

The project will indirectly contribute to the improved management of the Upper Senqu Catchment[46] through facilitating technical and institutional capacity building to implement and apply natural capital accounting and ecosystems account for land and water. This will be implemented at a number of selected sub-catchments (Khubelu and Senqunyane sub-catchments) within the Upper Senqu Catchment, an area with significant biodiversity values and a broad selection of water users and uses.

Information provided by the natural capital accounts will inform budgetary allocation and thus contribute towards enhanced understanding on the contribution of Natural Capital in managing the key ecosystem of the Upper Senqu Catchment as a pilot and providing stakeholders with an additional tool to monitor key biodiversity and ecosystem indicators.

The NCAA exercise will rely on comprehensive spatial and temporal data collected by governmental institutions, that define the stock of renewable and non-renewable resources, including biodiversity (e.g., plants, animals, air, water, soils, and minerals), that combine to yield a flow of benefits (ecosystem goods and services) to people.

1.5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Project Component	Scenario in absence of GEF Project	Scenario with GEF Project
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<p>Component 1</p>	<p>Although the natural capital of Lesotho is under threat as a result of the environmental problems described, no methodological approach has been applied in Lesotho to account for the inherent value of natural resources and the ecosystem services they provide to society. Institutions as the Ministry of Environment, the Ministry of Water and the Bureau of Statistics lack presently the capacity to adopt the concept of NCA and do not have an institutional arrangement. Besides a lack of institutional capacity, human resources are not trained in the concepts and methods of NCA and valuation of ecosystem services. Lesotho measures presently its national wealth only in terms of traditional economic performance, but not through the natural capital in national land and water resources accounts. Efforts to quantify the value of the natural capital and their impact in national indicators (like GDP) also have not been undertaken. Besides the limited institutional capacity, another related barrier is presented by the availability of spatial data of land and water and their temporal development.</p>	<p>The GEF incremental funding will enable the development of a coherent and consistent methodology for NCA, enhance an appropriate institutional arrangement and support the design of a national system to implement and apply natural capital accounting and ecosystem services valuation in Lesotho. Additionally, the project will support staff training and institutional capacity building on natural capital accounting and valuation of ecosystem services through targeted training courses to key staff members of governmental institutions and other stakeholders. This will be supported with the development of a National Spatial Database (NSD) to gather the necessary spatial information of land (land cover, land use, degradation, vegetation, biodiversity etc.) to compile terrestrial accounts with support of pilot areas to test and refine the NSD. In order to support and facilitate a longer-term embedding of NCA within Lesotho, a Road Map for advancing NCA in Lesotho will be developed, consolidating a future vision for NCA in Lesotho.</p>
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Component
2

Presently, the spatial management of watersheds is not informed with information on the valuation of the natural capital of Lesotho. The economic expression of the value of the natural resources is not available for decision-makers, although the majority of the population is dependent for its livelihoods on these resources through agriculture. As Natural Capital Accounts for land and water are not yet established, policy makers are not informed about the trends in the accounts and the potential impacts of spatial planning decisions or development interventions. It is therefore also difficult to generate scenarios and quantify impacts of plans and policies on the natural environment and the socio-economic services they provide within specific watersheds. No NCA trials or pilots have been initiated to potentially inform and guide policy processes and operational guidelines for integrated watershed management.

The GEF project will enable the assessments of the status of land and water accounts of selected ecosystems (sub-catchments) and the ecological services these ecosystems provide in the pilot area of the Upper Senqu. It will include ecosystem extent, condition, supply and use account. The supply and use accounts will be developed and offer potential use cases for reservoir management and irrigation water allocation. Based on available data, at least one ecosystem condition account will be constructed to demonstrate how NCA can be used as monitoring tool for watershed management beyond only the water domain. Their importance to specific economic sectors will be identified and evaluated and their role in guiding policy and operational guidelines in the pilot area. Additionally, the GEF incremental funding will support the piloting of the use of NCA, with additional information on water users and use, in the policy guiding of an integrated watershed management plan for the Upper Senqu Catchment. This pilot will be combined with a policy dialogue with key stakeholders how information on natural capital through the use NCA can be mainstreamed into integrated watershed management. Resource managers will be capacitated how to use ecosystem supply and use accounts as part of basin management.

Component 3	The present lack of understanding of the concept of Natural Capital and Natural Capital Accounting is the direct result of the missing institutional and human resource capacity in Lesotho and hampers the development and promotion of NCA and the adoption and application of NCA for sustainable development. The potential and value of NCA are not sufficiently recognized and brought to the attention of potential stakeholders and institutional entities.	The GEF incremental funding will support the development of outreach and knowledge products (flyers, manuals, technical reports, social media posts etc.) for the promotion of NCA. This will be accompanied by raising awareness among stakeholders on the possible application opportunities of NCA in spatial planning and development frameworks. Specific knowledge sharing events will be organized to enable networking and knowledge exchange to present and discuss emerging good practices, lessons and to facilitate further uptake and development of NCA in Lesotho.
Component 4	Presently, no integrated and effective monitoring and evaluation system for NCA is in place in Lesotho.	The GEF support will facilitate the development and management of a project sex-disaggregated M&E system enabling the tracking of project progress, performance and specifically capturing best practices to enable replication of NCA. The M&E system will feed the capturing of lessons learnt and document and consolidate emerging best practices. The M&E system will support the development of the Mid-Term Review Report and ultimately of the Terminal Evaluation Report and an accompanying Exit Strategy.

1.6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

The project will indirectly contribute to the improved management of selected sub-catchments of the Upper Senqu Catchments (in total 1,506,419 Ha) through facilitating technical and institutional capacity building to implement and apply natural capital accounting and ecosystems accounts for land

and water. This will be implemented at pilot watershed areas in the Upper Senqu Catchment, Khubelu and Senqunyane sub-catchments (27,842 and 65,679ha, combined 93,521ha) with relevance for the national economy, due to the natural capital present in these areas and the biodiversity status and global significance. Information provided by the natural capital accounts will serve as input for watershed management plan development, thus contribute towards enhanced understanding of the contribution of natural capital (and the valuation of biodiversity) to the economy and the livelihoods of the communities dependent on these areas. Through the development of an enhanced knowledge base relating to the status of NC for watershed and improved information on linkages with, and contributions to key economic sectors, the project will facilitate improved decision-making to minimize adverse impacts of key sectors on ecosystem service provision. The project will contribute to the conservation and sustainable use of biodiversity and ecosystem flows of benefits in terrestrial and areas, lead to improvement in the understanding and measurement of both land and water accounts, contribute to enhanced sustainable livelihoods for local and ecosystem-dependent local communities (the total number of persons who will directly benefit from the projects interventions in the pilot areas, core indicator 11, based on the preliminary selection of sub-catchments with the Upper Senqu Catchments, Khubelu and Senqunyane sub-catchments, amounts to 4,658 (2,257F and 2,401M) and to be confirmed during the PPG phase), and contribute to the measurement and monitoring of the status of natural capital embedded in the national reporting system in the regular updates of the Bureau of Statistics.

The project will allow district and local stakeholders to systematically define environmental and economic trade-offs associated with development measures, and incorporate ecosystem service-related opportunities and risks into their planning and development of watershed management strategies. The project will formulate sustainable development plans for the pilot areas, including a watershed management plan, whereby local stakeholders can negotiate mutual long-term benefits while minimizing risks and conserving natural ecosystems, including biodiversity. The Lesotho mountain catchments, provide substantial baseflow and discharge that are important for Lesotho as well as for South Africa. The Lesotho Highlands Water Project capitalizes on this key natural capital provided by the ecosystem services of the Lesotho watersheds with transboundary impact in generating lasting and reliable water availability and safeguarding a renewable energy source through hydropower generation.

1.7) innovation, sustainability and potential for scaling up. ?

Innovation: The project will develop a coherent and consistent methodology based on international good practices (UNSD, TEEB, SEEA-EA) and support Lesotho in the set-up of an institutional arrangement and national system for Natural Capital Accounting in Lesotho, which is presently not existing. The system will be linked to a national spatial database to compile natural capital accounts with support of pilot areas to test and refine this database. Institutional capacity will be built to support and operate the NCA system and to enable the valuation of ecosystem services. The project will

support and build capacity of the resource managers on recognizing, quantifying and capturing the contribution of the terrestrial ecosystem services on water resources so that conservation and restoration of these ecosystems will be integrated into water resource planning. The project will support the further outreach and awareness raising of the concept and application opportunities of NCA as innovative approach in Lesotho.

Sustainability: Through its focus and support on the building of institutional capacity on NCA and the adoption of an institutional arrangement and national system design for NCA, the foundation will be developed for longer-term development and application of NCA in Lesotho. This is further supported by the development of a road map for advancing NCA in Lesotho, in which a longer-term vision for NCA in Lesotho will be formulated. This road map will present the key stakeholders, sketch roles and responsibilities, explore budget requirements and funding opportunities, all geared to facilitate a longer-term uptake and development of NCA in Lesotho and supportive to the post-project sustainability of the targeted impact towards NCA in Lesotho. The piloting of land and water accounts in the pilot area serves to tune the approach to local conditions and requirements. The policy dialogue initiated under Component 2 will support to build awareness and application possibilities for key stakeholders at national level.

Scaling up: The project will, besides its focus on the development of institutional capacity on NCA, pilot the establishment of natural capital accounts for selected sub-catchments in the Upper Senqu Catchment (Output 2.1.1, including the piloting of the use of NCA to inform an integrated watershed management plan, Output 2.1.2). Based on these pilots, there will be clear scope and opportunity to expand geographically these accounts towards a national coverage, making use of the experience and skills from the pilot exercises and supported by the development of a national NCA set-up and the related development of a national road map, exploring and outlining scaling up opportunities, but also related constraints and budgetary requirements. The policy dialogue initiated under Component 2, described above, will support to build awareness and application possibilities for key stakeholders at national level to spatially and temporally expand the use of the piloted methodology to other areas in Lesotho.

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[2] CIA Lesotho Country Fact Sheet 2021

[3] World Bank Group: Lesotho: Systematic Country Diagnostics, 2015

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Qongqong Hoohlo (NES) and Tabo Sophonea (BOS).
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[45] GEF (2018). Summary of Negotiations of the Seventh Replenishment of the GEF Trust Fund

[46] The total area of selected sub-catchments in the Upper Senqu Catchment needs to be defined during the PPG phase (the Upper Senqu Catchments total 1,506,419 hectares)

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Cardinal points	Latitude	Longitude
Most Central	-29.484	28.682
Northernmost point	-28.651	28.703
Southernmost point	-30.175	28.473
Westernmost point	-29.353	27.965
Easternmost point	-29.383	29.448

Data availability	Presence of baseline data collected through other projects (ICM,MDTP) Transboundary Reservoirs (Katse , Polihali)
Private sector presence/engagement	Major Mines (Lets?eng Diamond Mine, Kao Diamond Mine, Liqhobong Diamond Mine, Mothae Diamond Mine)
Community livelihoods	Important because of livestock population
Environmental challenges	Fire, soil erosion, overgrazing, wetlands disturbance, road infrastructure development, overharvesting of medicinal plants
Environmental services	Key area for subsistence farming (livestock and food crops), key biodiversity area

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement

Various consultations were held with different groups of stakeholders. These consultations varied between initial discussions with representatives of key ministries on the definition of the precise theme and the matching needs in Lesotho to more in depth focus group discussion with groups of stakeholders at national level, followed by meetings with representatives of stakeholders present and active in the Upper Senqu Catchment. These last meetings included representatives of NGOs (Traditional Healers

Association, Arts and Crafts Associations), private sector (Mining companies present in the Upper Senqu Catchment, fishing companies, nature-based production companies) and local communities (Herders and Grazing Associations, as important stakeholders representing local communities in 5 Districts of the Upper Senqu Catchment). The notion of indigenous peoples is not considered in Lesotho, because all people are seen as equal. Therefore, only representatives of local communities are consulted. However, we confirm that detailed and wide stakeholder consultations will be undertaken during the PPG stage.

Stakeholder	Involvement
Ministries and other Governmental Institutions	
Ministry of Tourism, Environment and Culture (MinTEC);	<p>MinTEC is the central authority for the protection of the environment in Lesotho. Its Department of Environment is responsible for managing the environment for its well-being, improved livelihoods and sustainable economic growth for present and future generations. MinTEC will coordinate project development and execution and will establish a Project Coordination Unit (PCU) located in the Ministry. A representative of MinTEC will chair the project steering committee. MinTEC will have a leading and coordinating role in the design and implementation phase, liaising with governmental entities and leading the formulation of project interventions.</p> <p>http://www.tourism.gov.ls/</p>
Ministry of Agriculture and Food Security (MAF)	<p>MAF is the central authority for participatory development and implementation of policies and programs with farmers, provision of expert advisory agricultural services to the farming community and agribusinesses leading to sustainable agriculture for the achievement of food security. Considering the high dependency of Lesotho's population on agriculture for their livelihoods through subsistence farming, the involvement of the MAF is essential in the introduction and roll-out of NCA in Lesotho. MAF will be a key partner in technical formulation of project activities and in supporting baseline information collection.</p> <p>https://www.gov.ls/ministry-of-agriculture-and-food-security/</p>
Ministry of Development Planning (MinDP)	<p>MinDP oversees the development planning and policy development for Lesotho. Its strategic objectives are to improve: coordination of planning, policy formulation and results tracking, resource mobilization and allocation efficiency, public sector investment efficiency and effectiveness. the human resource capacity to perform, internal and external communication, and to enhance implementation of policies. MinDP has a lead role in identifying entry points for NCA integration into policy development and the design of related project activities.</p> <p>https://www.gov.ls/ministry-of-development-planning/</p>

Stakeholder	Involvement
The Bureau of Statistics (BOS)	<p>The Bureau of Statistics (BOS) is a government Department under MinDP, mandated to set up a system for national official statistics on economic, social, demographic, including human resources, and environmental areas in relation to the development needs of Lesotho; and official statistics for purposes of economic and social planning, research, public information and international cooperation, and for related matter. The BOS was established in 2001 with the enactment of the Lesotho Bureau of Statistics Act. BOS gathers and publishes a lot of data that is important for environmental statistics. This information is particularly useful regarding background variables but some variables contain pure environmental data. The BOS produces annual reports on key statistics and operates and maintains the Lesotho Data Portal: https://lesotho.opendataforafrica.org/, with an overview of economic, agricultural, demographic, energy, healthcare, food security, education, trade and geographic data. BS will be a key partner in supporting the design of the NCA institutional set-up, including the National Spatial Database and will have a leading role in design and definition of activities and technical outputs directly of relevance for the BOS. This includes the definition of the NCA road map.</p> <p>https://www.bos.gov.ls</p>
Ministry of Forestry, Range and Soil Conservation (MinFRSC)	<p>MinFRSC: the mandate of the Ministry of Forestry, Range and Soil Conservation is to rehabilitate degraded land, provide policy and strategic direction as well as review, develop and implement legal frameworks in the areas of forestry, soil and water conservation and range resources management. In its efforts to effectively implement this mandate, the Ministry is expected to create employment opportunities for local communities. The Ministry houses LeSIS: the Lesotho Soil Information System, providing soil maps and related information systems and constituting the basis for assessing soil quality over time. LESIS further advocates for organized and systematic survey and monitoring of soils in Lesotho with accurate and up-to-date soil information using state of the art methods and tools of digital soil mapping. LeSIS contains various data sets beyond only soil data: it has land cover data and land form data and additionally presents spatial and climate data. MinFRSC will support the technical design of activities and baseline information gathering.</p> <p>http://www.forestry.gov.ls/</p> <p>www.lesis.gov.ls</p>

Stakeholder	Involvement
Ministry of Water (MinW)	<p>MinW's mandate is to develop, update and monitor the implementation of water policy, water and sanitation legislations and strategy; preparation and coordination of all water sector management activities, including international waters, and provision of direction on water resources management and utilization. The objectives of MinW are: to strengthen the development and management of water resources and Sanitation facilities; to increase access to portable water and sanitation services to all consumers, reliably, affordably and on a sustainable basis; to advise and disseminate information on water resources for informed decision making for planning and development. The involvement of MinW is essential for the assessment and accounting of water resources and the methodological development of a water account. MinFRSC will support the technical design of activities and baseline information gathering and in particular the design of the piloting the use of NCA through the development of an integrated watershed management plan.</p> <p>https://www.water.org.ls/</p>
Ministry of Energy and Meteorology (MinEM)	<p>MinEM is mandated to oversee the energy sector and houses the Lesotho Meteorological Services (LESMET). LESMET provides meteorological and climatological information, data and advisories, which enhance productivity and promote sustainable development through harmonization of sectoral activities with weather and climate. MinEM will support the technical design of activities and baseline information gathering.</p> <p>https://www.gov.ls/ministry-of-energy</p> <p>and</p> <p>https://www.lesmet.org.ls/</p>
Ministry of Mining (MoM)	<p>The MoM is committed to explore and disseminate information on mineral resources, regulate and manage prospecting and mining activities to develop the mining sector in partnership with stakeholders in an environmentally friendly and sustainable manner for the socio-economic benefit of the Basotho nation. Mineable natural resources are important for the natural capital of Lesotho and MoM is therefore a logical stakeholder in development of NCA. MM will support the technical design of activities and baseline information gathering.</p> <p>https://www.gov.ls/ministry-of-mining/</p>
Ministry of Gender, Youth and Sports and Recreation (MinGYSR)	<p>The MinGYSR houses the Department of Gender with the mission to ensure the equality of all opportunities between women, men, girls and boys, so that development efforts have an equal impact on all gender issues. Its aim is to facilitate proper integration of gender issues in development to ensure full involvement, participation and partnership of women and men, girls and boys in both their productive lives. The Department of Gender's engagement is foreseen to guide and support the project with its gender action plan and the monitoring of proactive gender interventions.https://www.gov.ls/ministry-of-gender-youth-and-sports/</p>

Stakeholder	Involvement
Ministry of Trade and Industry (MTI)	Fair and equitable sharing of resources and benefits. Regulation on the trading natural resources and their products. Standards and markets.
Ministry of Small Business	Local markets; access to international trading and markets.
Ministry of Local Government	Advocacy on value and importance of natural resource. Mainstreaming of NCA in their spatial planning. Capacity building on NCA systems. Conservation and protection of natural resources through local government structures (Community councils).
Ministry of Finance	Monitors progress and disbursement of funds and co-financing. Mainstreaming of NCA; monitoring and evaluation of government plans and programs to ensure efficiency.
Lesotho Revenue Authority	Data on revenue from natural resources, cost of input to the environment, based also on information on import and export of goods.
Lesotho Tourism Development Cooperation (LTDC)	Mainstreaming NCA, Enhance sustainable ecotourism and protection of environment (ecosystems, species, and vandalism).
Lesotho Highlands Development Authority (LDHA)	Knowledge management, Mainstreaming of NCA, Capacity building on NCA. Monitoring of the quality of water and pollution. Management of catchments that flow into the dams. Conservation, protection and monitoring of biodiversity in catchment area.
International Partners	
International partners (UNDP, FAO, GIZ, CRS)	Technical assistance and funding; capacity building and technical support. Replication of projects and best practices. Coordination and knowledge exchange.
BIOPAMA	The Biodiversity and Protected Areas Management (BIOPAMA) Programme assists the African, Caribbean and Pacific countries to address their priorities for improved management and governance of biodiversity and natural resources. BIOPAMA provides a variety of tools, services and funding to conservation actors. Improve long term conservation and sustainable use of natural resources in protected areas and the surrounding communities. Provide support on assessment of protected areas and surrounding ecosystems and availability of the spatial data on biodiversity in collaboration with Regional Resource Hub (RRH), Joint Research Center (JRC).
Academia	

Stakeholder	Involvement
National University of Lesotho	Undertake research on sustainable implementation of the NCA. Provide institutional capacity and support awareness and training programmes for sustainability. Support the assessment of the status of ecosystems and establishment of the NCA for pilot areas.
NGOs	
Lesotho Traditional Medical Practitioners Council	<p>Promote and control the activities of traditional medicine practitioners. Facilitates the improvement of skills of traditional medicine practitioners on biodiversity values and the ecosystem services. Ensure sustainable harvesting of biological resources and promote awareness on sustainable use. Bring together all traditional medicine practitioners into one association. Technical and scientific support - used to provide data on spatial assessment of ecosystems and their benefits for informed policy and decision-making to responsible to MTEC, Ministry of Water and BOS. Support scaling^{up} of community outreach programs. Develops MOUs with relevant Ministries. Formal and informal training. Benefit: Support academic institutions to integrate NCA into their programs as a long-term intervention on sustainability.</p> <p>Knowledge management.</p>
Lesotho Council of Non-Governmental Organisations	Promote, coordinate and support member organisations in their efforts to contribute to national development and governance agenda, including environment protection and stewardship. Awareness and Advocacy on NCA and mainstreaming of NCA in development planning at all levels.
Herders and Grazing Associations	Users of range resources; advocacy on best standards and practices on natural resources management and conservation.
Arts and Crafts Associations	Advocacy on best standards and practices on natural resources management and conservation. Economic value of the crafts. Access to formal markets. NCA will promote the use of environmental standards to demonstrate the economic foot printing of their products to the market.
Irrigation schemes	Application of good practices including conservation agriculture by users of water resources for irrigation.
Private Sector partners	
Private Sector	<p>Provide co-financing and funding of relevant research on NCA development and ecosystem services valuation (data availability, Technology development).</p> <p>Compliance to standards and best practices by users of natural resources in production of materials.</p>

Stakeholder	Involvement
Fishing companies	Data on fish produced. Pricing will be in line with the actual value. Monitoring of the quality of water and pollution. Monitoring of the impact of trout introduction in the ponds.
Mining companies (Letseng Diamond Mine, Kao Diamond Mine, Lqhobong Diamond Mine)	Mainstreaming NCA, knowledge management, compliance to the environmental management plans. Support the community conservation programs. Biodiversity offsets to compensate impact brought about by mining activities.
Bophelo Natural Products and other related companies	Data on revenue generated from their products, capacity building on propagation and conservation of natural resources. Equitable sharing of the natural resources.
Local Communities	
Local communities	Representatives of relevant community-based organizations or NGOs will sit on the Project Steering Committee.

[1] https://www.bos.gov.ls/BOS_Act_2001.htm

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

Women are important managers of biodiversity and also bear the main responsibility for household operations in Lesotho including food production, and collection of essential resources including forest, water, fuel and fodder, while men might be more involved in

the formal income generating activities, such as small-scale businesses and employment.

In the project preparation phase a gender analysis will be conducted in order to incorporate a gender perspective in project interventions, reflected in a concise gender action plan and provide an impartial platform to address gender concerns. Such analysis and related gender action plan will enhance the project's effectiveness in understanding, promoting and incorporating gender equality and its contribution to sustainable development. Additionally, specific logframe indicators and targets will be set related to gender equality or inclusiveness, as well as explicit budget allocations to enable meaningful M&E through collection of gender-disaggregated data.

Furthermore, women's perspectives and needs have to be included equally with men's in decision-making processes to advance sustainable development planning, to be piloted under Component 2. The project through its system of accounts will capture information and the monitoring of indicators related to biodiversity and ecosystem management, the potential for income generation, job opportunities and improved livelihoods which naturally include aspects on gender equality, fair access and benefit sharing of women in gainful activities as they relate to biodiversity, ecosystems and ecosystem services.

The project preparation phase will also offer the opportunity to consult representatives of the Ministry of Gender, Youth and Sports and Recreation to infuse their knowledge and advice in the detailed project design and align the project interventions with standing policies on gender in Lesotho.

The project will aim to incorporate gender-sensitive approaches and consider applying both qualitative and quantitative data when conducting a gender analysis in order to fully comprehend the differing roles and needs of women in men within the context of Lesotho. Gender mainstreaming necessitates a contextual analysis of women's and men's needs, priorities, roles, and experiences, as well as the incorporation of specific actions to address any gender-based inequalities in any planned action. It remains pivotal to assess who gains and who loses if the stated project activities were to be implemented, using a gender-based lens.

UNEP has adopted the Gender Marker and Guidelines which will ensure that project design meets the gender requirements of GEF as well UNEP.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources; Yes

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

In the initial stakeholder mapping and consultation within the Upper Senqu catchment a number of direct private sector stakeholders were identified, see the Table under section 2 above. Among these stakeholders are a number of diamond mines, fishery companies and companies producing natural products originating from the Upper Senqu Catchment. During the PPG phase further consultations will be held with potential private sector stakeholders, e.g., representatives of the mining sector (diamond mines) and the hydropower sector (e.g., the Lesotho Highland Water Project, providing both energy and water, a bi-national undertaking with large private sector companies involved in consulting, design and engineering), as they both are clearly involved in their activities with important sources of natural capital with substantial contribution to the economy of Lesotho. As private sector involvement in development of NCA is taking shape, e.g., in the context of the Capitals Coalition, this offers opportunities for engagement of private sector actors in Lesotho, see also Natural Capital Coalition (2021): Our Value Report[2].

[1] Capitals Coalition: <https://capitalscoalition.org/>

[2] https://capitalscoalition.org/wp-content/uploads/2021/08/Our-Value-Report_2020-21-.pdf

5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risk	Risk Level	Mitigation Strategy
<p>Limited capacity of national institutions to implement project activities.</p>	<p>Medium</p>	<p>The project will ensure full support throughout the implementation phase through support via the Executing Agency, and targets specifically under Component 1 activities for targeted capacity-building of national institutions, in order to specifically prepare national institutions for their respective roles and responsibilities. This targeted capacity-building support will also aim at addressing specific challenges due to weak understanding within national governmental institutions and other stakeholders of the concepts and approaches relating to Natural Capital Assessment and Accounting (particularly through Outputs 1.1.1, 1.1.2 and outreach and knowledge management under Outputs 3.1.1, 3.1.2 and 3.1.3). Implementation will additionally be supported by expertise provided by UNEP and specific capacity building inputs from consultants under Component 1.</p>
<p>Overlapping institutional mandates and responsibilities among ministries and institutions could complicate and challenge the development of natural capital accounts</p>	<p>Low</p>	<p>A comprehensive stakeholder mapping analysis will be conducted at the inception phase to ensure engagement of key stakeholders in the project execution. These important partners' roles will be clarified in the project execution. A Project Steering Committee will be established with representatives of line Ministries. Under Output 1.4 the development of a national Road Map for Advancing NCA in Lesotho is targeted, consolidating a future vision for NCA in Lesotho, and clarifying stakeholder roles in this future process.</p>
<p>Limited awareness of natural capital accounting and valuation ecosystem services together with existing budgetary constraints endanger needed budget allocation in line ministries and institutions to advance NCA post-project.</p>	<p>Medium</p>	<p>During project implementation substantial attention will be given to building institutional capacity combined with outreach and knowledge management for promotion of NCA and its possible application in development planning for sustainable development. The Natural Capital accounts to be piloted will contribute to showcase the application potential and the economic importance of recognition of economic value of natural capital. Existing budgetary constraints will limit future budget allocation to NCA, but the project will contribute to introduction and embedding of the theme in future policy development and advocate related budgeting.</p>

<p>The additional information brought forward through NCAA (accounts, analyses, reports) are not acted upon by the Government and key stakeholders and not institutionalized, not materially changing the BAU scenario.</p>	<p>Low</p>	<p>In line with the above-described risk and mitigation measures, the project will give substantial attention to awareness building and institutional capacity building, combined with piloting and testing of the NCA approach. This is aimed at showcasing the application potential and importance of recognition of economic value of natural capital in policy decisions. Pilots will help in showing that opportunity costs will be limited compared to actual/potential economic and ecological benefits, supporting longer-term adoption of NCAA.</p>
<p>Current institutions have inadequate technical capacity to develop/adapt natural capital accounting and valuation of ecosystem methodologies</p>	<p>Medium</p>	<p>Under Component 1, the project will support the development of a national spatial database to compile land (and water) accounts with support of pilot areas to test and refine the database. Under Outputs 1.1.1 and 1.1.2 targeted capacity building training on NCA and valuation of ecosystem services aim to raise specific technical capacity, which will be supported with technical inputs and guidance from international experts.</p>
<p>Exclusion of women from consultation and implementation processes</p>	<p>Low</p>	<p>The Project calls for and will apply and track the equitable participation of men and women, which may require measures to remove the sociocultural and economic barriers that silence women's voices; provide project guidelines on gender towards selection of staff, consultants and sub-contractors, and importantly in the implementation of the many project activities.</p>

Climate risk screening for the project

Low

Projection/scenarios: Increased temperatures are expected for the region, mean monthly temperature changes expected to increase by more than 2.0°C for the 2050s and by 4.4°C by end of the century, under a high-emission scenario (World Bank Climate Risk Profile, 2021).

Climate projection analysis results indicate (NDC 2021) a general warming trend of temperatures countrywide during the baseline period (1971-2000) and across all future periods (2011-2100). The plausible increase in annual maximum and minimum temperatures simulated by the models is also reflected across all seasons. The increasing trends in temperature during the historic period are weak but statistically significant for all the seasons. Rainfall on the other hand, shows a high spatial variability which is also higher in magnitudes relative to the established inter-annual variability for the region. The highest total precipitation accumulation during the covered period is in the Mountains while the Lowlands have the lowest total precipitation accumulation (see section and map on page 8).

Temperature increases are expected throughout the country, although slightly lower degrees of temperature increases are expected to occur in the mountain zones. Increased incidence of heat waves and higher rates of evapotranspiration are expected, which will affect multiple aspects of local economic development and agricultural productivity. One of the most serious consequences of increased heat for Lesotho is the projected increases in the number of days with temperatures over 25°C. Impacts will be most pronounced from August to May.

Vulnerability: Lesotho has a high vulnerability to the impacts of climate change. The World Bank Climate Risk Country Profile (2021) states that: "Lesotho is already experiencing the negative effects of climate changes, including increased frequency of extreme events, inter alia droughts, increased rates of soil erosion and desertification, and reduced soil fertility. The country is likely to become generally hotter and drier across projected future climates."

Water resources are likely to be increasingly strained across Lesotho as well as across southern Africa; warmer temperatures are expected to accelerate the rate of evapotranspiration for the country. With more frequent and severe droughts, the region will likely experience negative impacts on water supply and agriculture. A potentially simultaneous increase in flooding events poses a serious water pollution threat, affecting health of wetland ecosystems and agriculture and livestock communities. Rainfall in Lesotho is highly variable. Northern areas of the country are expected to experience below normal precipitation through mid-century, with slightly above normal rainfall through the end of the century.

<p>COVID induced delays to PPG and MSP implementation</p>	<p>Medium</p>	<p>The COVID-19 pandemic as it unfolds requires continuing attention during PPG and project implementation, safeguarding the health and safety of all stakeholders involved through precautionary measures.</p> <p>During PPG and project implementation an action plan with precautionary measures will be followed in order to limit specific COVID risks and seize emerging opportunities. The outline of this action plan is formed by the following principles:</p> <ul style="list-style-type: none"> ●When possible, conduct consultations in person, but always consider the alternative option of remote consultations (video/phone, etc.). ●Plan travel to project sites and training events/workshops when possible, but prepare for alternative scenarios to limit delays and ensure active participation of all stakeholders. ●Build on the momentum the pandemic has created with more awareness on the importance of a healthy state of the environment and conservation of natural resources and the recognition of the intrinsic values natural capital offers.
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6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

The Ministry of Tourism, Environment and Culture (MinTEC) will be the national executing agency, which will be responsible to the Government and UNEP for the quality and efficiency of using the capital and outputs of the project. The MinTEC will designate its Department of Environment to be project owner which will be responsible for enhancing a coordinated cross-sectoral approach to promoting NCA. Other executing partners will be the Ministry of Water and the Ministry of Forestry, Range and Soil Conservation.

MinTEC will oversee project activities with all related parties and coordination with other agencies during the implementation process; answer all questions related to the progress of the Project implementation; prepare mid-term review and report, complete the project and assess project impacts

on the global environment. Agencies responsible for implementing activities within the project will assign focal points to communicate closely with other relevant agencies and exchange relevant experiences.

Mechanisms to coordinate are proposed to include (a) a Project Board/Steering Committee which will be chaired by MinTEC and include national and local partners (e.g. Ministry of Agriculture and Food Security (MAF), MinDP, BOS, Ministry of Forestry, Range and Soil Conservation (MinFRSC), Ministry of Water (MinW), Ministry of Energy and Meteorology (MinEM), Ministry of Mines (MoM) and Ministry of Gender, Youth and Sports and Recreation (MinGYSR) etc.) and serve as the key governance and decision-making body for the project (membership will be confirmed during the PPG); (b) a national technical advisory group to provide technical inputs on project approaches, outputs and activities (representatives from key projects will be invited to participate); (c) project-to-project coordination through regular contact of the PMUs of respective projects; (d) coordination through common executing partners/supporting partners (e) knowledge management activities.

The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Reporting requirements and templates are an integral part of the UNEP legal instruments, to be signed with the Executing Agencies and the GEF Implementing Agencies. The project M&E plan will be consistent with the GEF Monitoring and Evaluation policy.

Coordination with GEF and other initiatives will be ensured through MinTEC and UNEP. In addition to the programs and initiatives mentioned in section 2 on baseline projects, this will include coordination and sharing of lessons learned with other national and sub-national initiatives and GEF-funded projects, supported by the activities under Component 3, Outreach and knowledge management, with Output 3.1.3 aimed at knowledge sharing events to enable the networking with stakeholders to facilitate further uptake and development of NCA. Few projects have been identified and presented under the section on baseline, whose coordination potential or best practice are of benefit to incorporate with the proposed project, and which will be further specified and confirmed in the PPG phase.

UNEP - The Economics of Ecosystems and Biodiversity (TEEB). Draw attention to the economic benefits of biodiversity including the growing cost of biodiversity loss and ecosystem degradation. TEEB presents an approach that can help decision-makers recognize, demonstrate and capture the values of ecosystem services and biodiversity. Experiences from TEEB on valuation of ecosystem services can be applied to calculate the contribution from land and water resources to the national economy

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions?

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC: LEMS (2006)

<https://unfccc.int/resource/docs/napa/lso01.pdf>

- Minamata Initial Assessment (MIA) under Minamata Convention, 2018:

<https://www.mercuryconvention.org/en/parties/lso>

- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD. NES (2000). Lesotho's Biological Diversity , National Strategy on Lesotho's Biological Diversity: Conservation and Sustainable Use.

Article 6 of the CBD compels Parties to the convention to develop their national biodiversity strategies and action plans (NBSAPs). The aim was to facilitate achievement of the objective of the convention which seeks to promote the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources. In tenth meeting of the CBD-COP parties were requested to align their NBSAP with the 2011-2020 biodiversity strategy which has integrated the global biodiversity targets (Aichi targets) and Lesotho has not yet fully adopted the 2011-2020 biodiversity targets, the process of revising the National Biodiversity Strategy and Action Plan (NBSAP) is in progress and nearing its completion. The project is therefore going to support the stocktaking and assessment process, of the values of biodiversity and ecosystem services in Lesotho and their contribution to the well-being of Basotho, make meaningful analysis of the causes and consequences of biodiversity loss in the country in terms of its value. Support institutional framework and national systems in place to support biodiversity management and conservation. Provide institutional capacity and awareness on NCA, the draft NBSAP has taken into consideration the capacity building plan and development of the communication strategy which the project will also align with. Mainstreaming of NCA into national legislation, policy, planning and institutional frameworks in place to enable successful implementation of the NBSAP/CBD. It is noteworthy that the country does not have a monitoring system in place for almost all the global targets on biodiversity except partial monitoring. But that does not imply the country is not making a contribution to each of the global Aichi Biodiversity targets, in spite of the low rate and limited monitoring. The project will

therefore develop a monitoring and evaluation system to track impact of the project intervention and implementation of the NBSAP and Global targets.

The draft NBSAP also take into consideration resource mobilization which the project through involvement of private sector will initiate and forge partnership with business community to support conservation activities and identify opportunities and areas of collaboration for sustainable development including technology application and research.

- Party to the Nagoya Protocol: since 2015

- CBD: Fourth National Report (2009) <https://www.cbd.int/doc/world/ls/ls-nr-04-en.pdf>

- National Communications (NC) under UNFCCC: Third National Communication (2021) https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/1023746_Lesotho-NC3-1-NAI_NC3.pdf

- Technology Needs Assessment (TNA) under UNFCCC, started in 2015, presently in phase 4 in collaboration with UNEP, see TNC page 260 and 261, carried out of Energy and LULUCF sectors.

- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD: NCSA for Global Environmental Management, 2004-2009: <https://www.thegef.org/projects-operations/projects/1933>

- National Action Plan Under UNCCD, Programme in Natural Resource Management, Combating Desertification and Mitigating the Effect of Drought, Ministry of Forestry, Range and Soil Conservation (2015)

-- Others: National Strategic Development Programme II (NSDP II) 2018/2019-2022/2023, <https://www.gov.ls/wp-content/uploads/2021/06/National-Strategic-Development-Plan-II-2018-19-2022-23.pdf>

The key priority areas in the NSDP II are: (i) pursuing inclusive and sustainable development, (ii) strengthening human capital, (iii) building enabling infrastructure, and (iv) strengthening national governance and accountability systems. The NSDP defines Key Priority Areas and Intermediate Outcomes, among which 1.1 Commercial Sustainable Agriculture and Food Security, and Key Priority Area III, with Intermediate Outcome 3.3 Sustainable Production, Use of Water Resources and Improved Sanitation and Hygiene.

- United Nations Development Assistance Framework (UNDAF-2019-2023). The UNDAF, with the Sustainable Development Goals (SDGs) at its core, will contribute to the achievement of the National Strategic Development Plan II objectives and will support Lesotho Government's aspiration to achieve the 2030 Agenda. Clear linkage with Outcome 3.2: By 2023, the people of Lesotho use natural resources in a more sustainable manner and the marginalized and most vulnerable are increasingly resilient.

8. Knowledge Management

Outline the knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

Knowledge management of the project is outlined under Component 3 of the project, 'Outreach and knowledge management for promotion of NCA'. This component creating a better understanding on the importance of natural capital and NCA for sustainable development in Lesotho through three distinct outputs: i) outreach and knowledge products development to support the promotion of NCA, ii) awareness raising of NCA and its possible applications, and iii) knowledge sharing events to enable the networking with stakeholders to facilitate further uptake and development of NCA in Lesotho. The various knowledge management products are intended to document and consolidate emerging best practices, report lessons learnt and discuss possible pathways to promote and facilitate further mainstreaming and uptake of NCA in Lesotho, including case studies to illustrate possible integration of NCA into spatial planning and development frameworks. The Natural Capital Accounts to be piloted and developed under Component 2 of the project are to be linked to and inform the formal central government knowledge mechanism for capturing, analyzing and valuing Natural Capital and their services as well as its dissemination in national statistical and economic reports. Close coordination with the Bureau of Statistics will further facilitate the sharing of information and lessons learnt.

In its knowledge management approach, it is intended to incorporate a gender-sensitive approach, which can comprise of but not limited to the following:

- ? Use of male and female knowledge product, communication, and public education material developers for the diversity of perspectives and approaches, as well as male and female reviewers of these products.
- ? Use of gender-sensitive language and gender-balanced images (women not presented as victims but as agents of change).

- ? Examining the context and content (use gender analysis; use convincing gender arguments based on reliable sources and qualitative and quantitative data including sex-disaggregated data), and
- ? Referring to (inter-)national policy framework, policies, strategies, and plans, as applicable and appropriate.

The project will learn and benefit from existing programs, expertise and formats/framework on the development and application of the SEEA-EEA based NC accounts through partnership with UN Statistics Division. Other knowledge exchanges will include regional training initiatives and modules, including the experience of the South African NCAVES project (of UNSD ad UNEP) and the expertise of STATS South Africa and the South African National Biodiversity Institute (SANBI Statistical) and collaboration with the Economics of Ecosystems and Biodiversity (TEEB).

[1] <http://teebweb.org/>

9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approva I	MTR	TE
Low			

Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

Risk	Risk Level	Mitigation Strategy
Limited capacity of national institutions to implement project activities.	Medium	The project will ensure full support throughout the implementation phase through support via the Executing Agency, and targets specifically under Component 1 activities for targeted capacity-building of national institutions, in order to specifically prepare national institutions for their respective roles and responsibilities. This targeted capacity-building support will also aim at addressing specific challenges due to weak understanding within national governmental institutions and other stakeholders of the concepts and approaches relating to Natural Capital Assessment and Accounting (particularly through Outputs 1.1.1, 1.1.2 and outreach and knowledge management under Outputs 3.1.1, 3.1.2 and 3.1.3). Implementation will additionally be supported by expertise provided by UNEP and specific capacity building inputs from consultants under Component 1.
Overlapping institutional mandates and responsibilities among ministries and institutions could complicate and challenge the development of natural capital accounts	Low	A comprehensive stakeholder mapping analysis will be conducted at the inception phase to ensure engagement of key stakeholders in the project execution. These important partners' roles will be clarified in the project execution. A Project Steering Committee will be established with representatives of line Ministries. Under Output 1.4 the development of a national Road Map for Advancing NCA in Lesotho is targeted, consolidating a future vision for NCA in Lesotho, and clarifying stakeholder roles in this future process.

<p>Limited awareness of natural capital accounting and valuation ecosystem services together with existing budgetary constraints endanger needed budget allocation in line ministries and institutions to advance NCA post-project.</p>	<p>Medium</p>	<p>During project implementation substantial attention will be given to building institutional capacity combined with outreach and knowledge management for promotion of NCA and its possible application in development planning for sustainable development. The Natural Capital accounts to be piloted will contribute to showcase the application potential and the economic importance of recognition of economic value of natural capital. Existing budgetary constraints will limit future budget allocation to NCA, but the project will contribute to introduction and embedding of the theme in future policy development and advocate related budgeting.</p>
<p>The additional information brought forward through NCAA (accounts, analyses, reports) are not acted upon by the Government and key stakeholders and not institutionalized, not materially changing the BAU scenario.</p>	<p>Low</p>	<p>In line with the above-described risk and mitigation measures, the project will give substantial attention to awareness building and institutional capacity building, combined with piloting and testing of the NCA approach. This is aimed at showcasing the application potential and importance of recognition of economic value of natural capital in policy decisions. Pilots will help in showing that opportunity costs will be limited compared to actual/potential economic and ecological benefits, supporting longer-term adoption of NCAA.</p>
<p>Current institutions have inadequate technical capacity to develop/adapt natural capital accounting and valuation of ecosystem methodologies</p>	<p>Medium</p>	<p>Under Component 1, the project will support the development of a national spatial database to compile land (and water) accounts with support of pilot areas to test and refine the database. Under Outputs 1.1.1 and 1.1.2 targeted capacity building training on NCA and valuation of ecosystem services aim to raise specific technical capacity, which will be supported with technical inputs and guidance from international experts.</p>
<p>Exclusion of women from consultation and implementation processes</p>	<p>Low</p>	<p>The Project calls for and will apply and track the equitable participation of men and women, which may require measures to remove the sociocultural and economic barriers that silence women's voices; provide project guidelines on gender towards selection of staff, consultants and sub-contractors, and importantly in the implementation of the many project activities.</p>

Climate risk screening for the project

Low

Projection/scenarios: Increased temperatures are expected for the region, mean monthly temperature changes expected to increase by more than 2.0°C for the 2050s and by 4.4°C by end of the century, under a high-emission scenario (World Bank Climate Risk Profile, 2021).

Climate projection analysis results indicate (NDC 2021) a general warming trend of temperatures countrywide during the baseline period (1971-2000) and across all future periods (2011-2100). The plausible increase in annual maximum and minimum temperatures simulated by the models is also reflected across all seasons. The increasing trends in temperature during the historic period are weak but statistically significant for all the seasons. Rainfall on the other hand, shows a high spatial variability which is also higher in magnitudes relative to the established inter-annual variability for the region. The highest total precipitation accumulation during the covered period is in the Mountains while the Lowlands have the lowest total precipitation accumulation (see section and map on page 8).

Temperature increases are expected throughout the country, although slightly lower degrees of temperature increases are expected to occur in the mountain zones. Increased incidence of heat waves and higher rates of evapotranspiration are expected, which will affect multiple aspects of local economic development and agricultural productivity. One of the most serious consequences of increased heat for Lesotho is the projected increases in the number of days with temperatures over 25°C. Impacts will be most pronounced from August to May.

Vulnerability: Lesotho has a high vulnerability to the impacts of climate change. The World Bank Climate Risk Country Profile (2021) states that: "Lesotho is already experiencing the negative effects of climate changes, including increased frequency of extreme events, inter alia droughts, increased rates of soil erosion and desertification, and reduced soil fertility. The country is likely to become generally hotter and drier across projected future climates."

Water resources are likely to be increasingly strained across Lesotho as well as across southern Africa; warmer temperatures are expected to accelerate the rate of evapotranspiration for the country. With more frequent and severe droughts, the region will likely experience negative impacts on water supply and agriculture. A potentially simultaneous increase in flooding events poses a serious water pollution threat, affecting health of wetland ecosystems and agriculture and livestock communities. Rainfall in Lesotho is highly variable. Northern areas of the country are expected to experience below normal precipitation through mid-century, with slightly above normal rainfall through the end of the century.

<p>COVID induced delays to PPG and MSP implementation</p>	<p>Medium</p>	<p>The COVID-19 pandemic as it unfolds requires continuing attention during PPG and project implementation, safeguarding the health and safety of all stakeholders involved through precautionary measures.</p> <p>During PPG and project implementation an action plan with precautionary measures will be followed in order to limit specific COVID risks and seize emerging opportunities. The outline of this action plan is formed by the following principles:</p> <ul style="list-style-type: none"> ●When possible, conduct consultations in person, but always consider the alternative option of remote consultations (video/phone, etc.). ●Plan travel to project sites and training events/workshops when possible, but prepare for alternative scenarios to limit delays and ensure active participation of all stakeholders. ●Build on the momentum the pandemic has created with more awareness on the importance of a healthy state of the environment and conservation of natural resources and the recognition of the intrinsic values natural capital offers.
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Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
<p>SRIF Lesotho NCA PIF draft April 11</p>	

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And GEF Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Mr. Stanley M. Damane	GEF Operational Focal Point	Ministry of Tourism, Environment and Culture	2/24/2022

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

Cardinal points	Latitude	Longitude
Most Central	-29.484	28.682
Northernmost point	-28.651	28.703
Southernmost point	-30.175	28.473
Westernmost point	-29.353	27.965
Easternmost point	-29.383	29.448

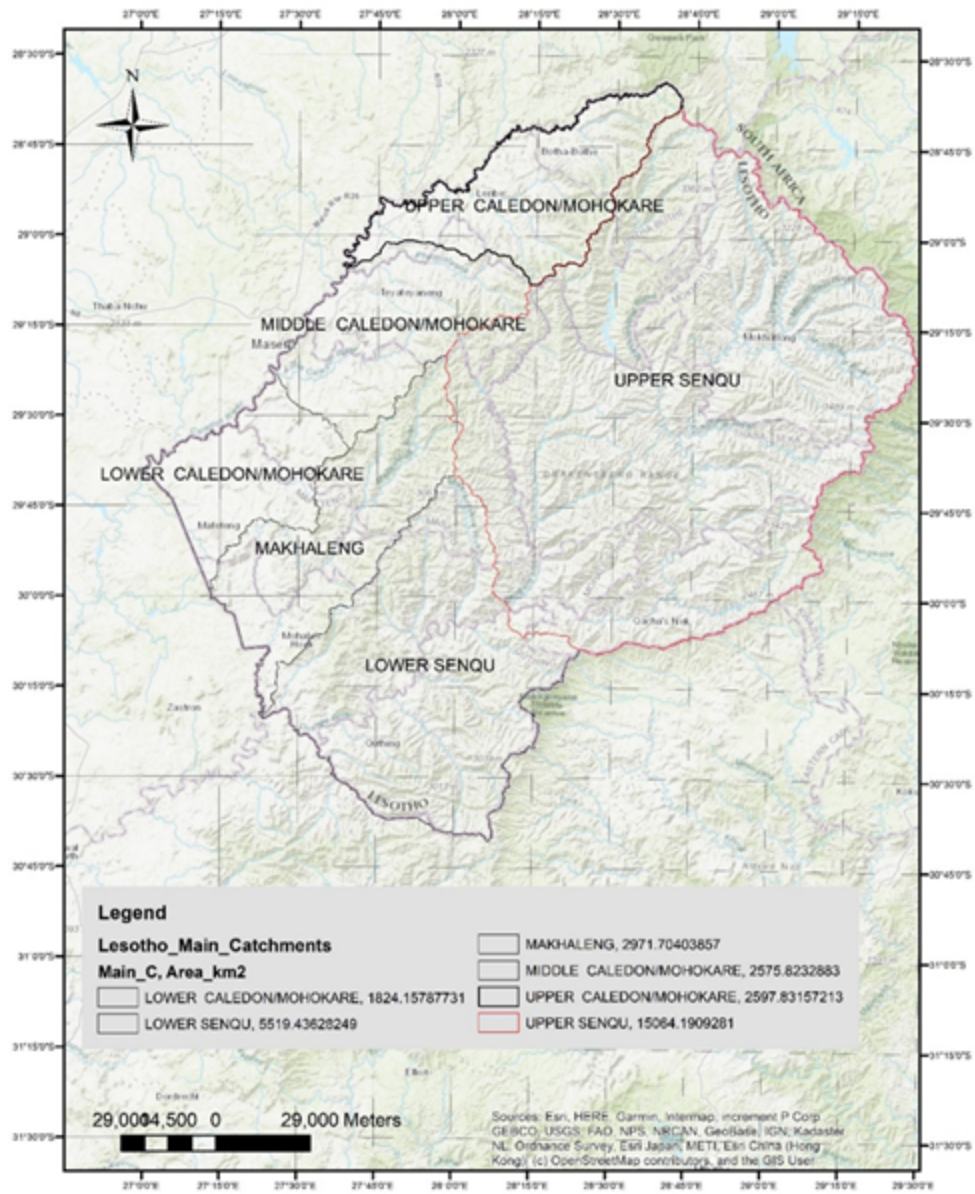


Figure 1 Location of the Upper Senqu Catchment. Source: ICM, 2021